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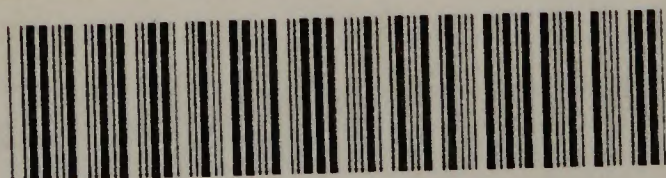
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THE DUBLIN  
QUARTERLY JOURNAL  
OF  
MEDICAL SCIENCE;

CONSISTING OF

ORIGINAL COMMUNICATIONS,

REVIEWS, RETROSPECTS, AND REPORTS,

INCLUDING THE

LATEST DISCOVERIES IN MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES.

VOL. XIII.

FEBRUARY AND MAY, 1852.

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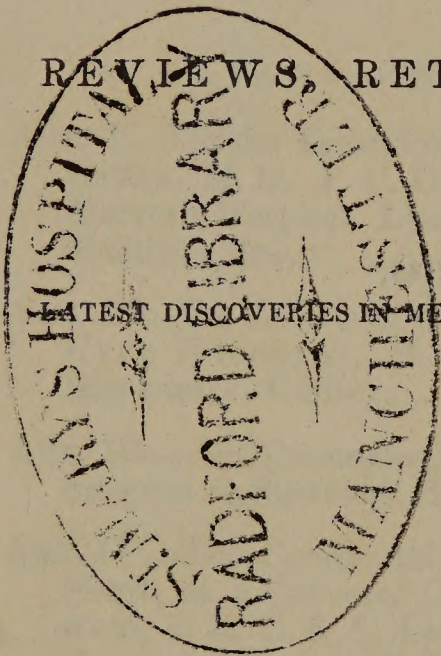
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189

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Contents.

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No. XXV.—FEBRUARY 1, 1852.

---

PART I.—ORIGINAL COMMUNICATIONS.

	Page.
ART. I.—On the Treatment of Fractures of the Femur. By PHILIP BEVAN, M. D. T. C. D., F. R. C. S. I., M. R. I. A., Surgeon to Mercer's Hospital, Lecturer on Surgery in the Dublin School of Medicine, &c., . . . . .	1
ART. II.—On the Use of Galvanism in Obstetric Practice. By JOHN HYDE HOUGHTON, M. R. C. S. L., one of the Surgeons to the Dispensary, Dudley, . . . . .	11
ART. III.—On Traumatic Spasms. By WM. COLLES, F. R. C. S. I., Surgeon to Steevens' Hospital, &c., . . . . .	33
ART. IV.—On Congenital Deficiency of the Septal Walls of the Heart, as a Cause of Cardiac Murmurs. By THOMAS H. LEDWICH, F. R. C. S. I., Lecturer on Anatomy and Physiology in the Original School of Medicine, &c., . . . . .	41
ART. V.—Notes on Cases of Syphylitic Meningitis. By THOMAS READ, M. B., L. R. C. S. I., Belfast, . . . . .	53
ART. VI.—Aneurisms of the Arteria Innominata ; their History and Differential Diagnosis from Aneurisms of the Arch of the Aorta. By T. S. HOLLAND, M. D. Edin., M. R. C. S. L., Corresponding Member of the Parisian Medical Society, and Lecturer on Pathological Anatomy, Cork, . . . . .	68
ART. VII.—On the Treatment of Fractures in the Vicinity of the Ankle Joint ; with Observations on the Practice of Tenotomy, as facilitating Reduction of the broken Bones. By RICHARD G. H. BUTCHER, F. R. C. S. I., Examiner on Anatomy and Physiology in the Royal College of Surgeons of Ireland, Surgeon to Mercer's Hospital, &c., . . . . .	96



	Page.
ART. VIII.—Some Account of an Epidemic of Pericarditis, which appeared in Kilkenny in the Winter of 1848–9. By JOSEPH LALOR, M. D., Physician to the Fever Hospital, Lunatic Asylum, and Union Workhouse, Kilkenny, . . . . .	114
ART. IX.—On a Variety of Uric Acid Crystals. By ROBERT D. LYONS, M. B. T. C. D., M. R. I. A., &c., . . . . .	123

## PART II.—REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. Lettres sur la Syphilis, à M. le Docteur Amédée Latour, Rédacteur en chef de l'Union Médicale. Par M. Ricord, . . . . .	129
2. Dr. Carpenter on Physiology, . . . . .	152
I. Principles of Physiology, General and Comparative. With 321 Wood Engravings. By William B. Carpenter, M. D., F. R. S., &c.	
II. A Manual of Physiology; including Physiological Anatomy. By William B. Carpenter, M. D., &c.	
3. On the Pathological Anatomy of Bronchitis, and the Diseases of the Lung connected with Bronchial Obstruction. By W. T. Gairdner, M. D., Pathologist to the Royal Infirmary of Edinburgh, . . . . .	154
4. On the Transmission from Parent to Offspring of some Forms of Disease, and of Morbid Taints and Tendencies. By James Whitehead, M. D., F. R. C. S., &c., . . . . .	162
5. Dr. Chevers on Diseases of the Heart, . . . . .	170
I. A Practical Treatise on the Management of Diseases of the Heart, and of Aortic Aneurism, with especial reference to the Treatment of those Diseases in India. By Norman Chevers, M. D., Civil Assistant Surgeon, Chitagong, Bengal.	
II. Collection of Facts illustrative of the Morbid Conditions of the Pulmonary Artery. By Norman Chevers, M. D., &c., Bengal. (Published in the London Medical Gazette between July, 1846, and September, 1851.)	
6. The Medical Aspects of Death, and the Medical Aspects of the Human Mind. By James Bower Harrison, M. R. C. S. E., &c., . . . . .	177
7. The Nature and Treatment of Softening of the Brain. By Richard Rowland, M. D., Assistant Physician and Lecturer on the Principles and Practice of Medicine at the Charing Cross Hospital, &c. &c., . . . . .	178
8. Surgical Anatomy. By Joseph Maclise, Esq., Surgeon, . . . . .	193
9. The Descriptive and Surgical Anatomy of the Arteries, and the relative Anatomy of the Veins and Nerves of the Human Body. By Joseph Henry Corbett, M. D., Professor of Anatomy and Physiology to the Apothecaries' Hall of Ireland, &c., . . . . .	194
10. The Structure and Functions of the Human Eye, &c. By Samuel Browne, R. N., M. R. C. S., Surgeon to the Belfast General Hospital and Ophthalmic Institution, . . . . .	196



## PART III.—MEDICAL MISCELLANY.

## Proceedings of the Pathological Society of Dublin.

	Page.
Ischuria Renalis; Urea in the Serum of the Ventricles of the Brain. By Dr. Banks, . . . . .	197
Aneurism of the Aorta. By Mr. O'Ferrall, . . . . .	198
Encephaloid Tumour in the Cerebellum. By Dr. M'Dowell, . . . . .	199
Disease of the Ankle and Tarsus. By Mr. Hamilton, . . . . .	200
Adhesive Phlebitis. By Dr. Mayne, . . . . .	201
Fracture of the Tibia and Fibula. By Professor R. W. Smith, . . . . .	202
Recent Endocarditis (Rheumatic). By Dr. M'Dowell, . . . . .	203
Chronic Cystitis; Renal Disease; Calculus in the Bladder. By Mr. O'Ferrall, . . . . .	205
Aneurism of the Thoracic Aorta. By Dr. M'Dowell, . . . . .	206
Congenital Luxations of the Radius. By Professor R. W. Smith, . . . . .	208
Aneurism of the Thoracic Aorta. By Dr. Mayne, . . . . .	211
Abscesses in the Brain. By Dr. Gordon, . . . . .	212
Cases from Practice, with Observations. By S. Browne, Esq., R. N., M. R. C. S. E., Surgeon to the Belfast General Hospital, and the Ophthalmic Institution.	
1. Operation for Cleft Palate, . . . . .	214
2. Strangulated Femoral Hernia, . . . . .	218
Cases of Traumatic Phlebitis followed by Gangrene, and requiring Amputation. By Charles Croker King, M. D., M. R. I. A., Professor of Anatomy and Physiology, Queen's College, Galway, . . . . .	221
Case of Tetanus; Chloroform Inhalations; Recovery. By J. T. Banks, M. D., M. R. I. A., King's Professor of the Practice of Physic, Physician to the Whitworth and Hardwicke Hospitals, &c., . . . . .	225
Case of Monstrosity. By James Bower Harrison, M. R. C. S. E., formerly Surgeon to the Ardwick and Ancoats Dispensary, &c., Manchester, . . . . .	229
Case of Hernia of the Lung, caused by the Handle of a Wheelbarrow penetrating the Side of the Chest. Reported by G. A. K. Lake, M. D., House Surgeon to the Royal South Hants Infirmary, . . . . .	231
Case of Scarlatina, with remarkable Recovery. By Thomas Fitzpatrick, M. D., Secretary to the Association of the Members of the King and Queen's College of Physicians, . . . . .	233
Report on the "Tissu Cellulaire Artificiel" of Melsens. By Robert D. Lyons, M. B. T. C. D., M. R. I. A., &c. . . . .	237
On the Differential Diagnosis of Inflammation of the Pancreas. By Dr. Franc. Lussanna, . . . . .	244



	Page.
Case of Hydrophobia, treated with Atropia, in the Greater Hospital of Brescia. By Dr. Fran. Richiedi, . . . . .	245
Case of Infra-Maxillary Excision of the Tongue. Reported by Dr. Giuseppe Giammattei, . . . . .	246
On some Effects of Atropia and of the Sulphate of Veratria. By Dr. Giacinto Namias, . . . . .	249
On Chromic Acid as an Escharotic. By Dr. Fromer, . . . . .	250
Special Pharmacopœia for Diseases of the Skin. By Alphée Caze- nave, M. D., Physician to the Hôpital St. Louis, Paris, . .	252

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1. On Nervous Affections connected with Dyspepsia. By William Bayes, M. D. London: Gilpin, 1851. 12mo. pp. 88.
2. An Essay on Infantile Remittent Fever; with especial reference to its Diagnosis from Hydrocephalus. Prize Essay. By Charles Taylor, M. R. C. S., &c. (From the London Medical Gazette, 1851.) Pamphlet, pp. 40.
3. A Manual of Physiology, including Physiological Anatomy. By W. B. Carpenter, M. D., &c. Second Edition; with 190 illustrations. London: Churchill, 1851. Post 8vo. pp. 616.
4. On the Transmission from Parent to Offspring of some Forms of Disease, and of Morbid Taints and Tendencies. By James Whitehead, M. D., F. R. C. S., &c. London: Churchill. Manchester: Simms and Dinham, 1851. 8vo. pp. 351.
5. Lectures on the Principles and Practice of Surgery. By Bransby B. Cooper, F. R. S., Senior Surgeon to Guy's Hospital, &c. London: Churchill, 1851. 8vo. pp. 964.
6. Report of the Proceedings of the Pathological Society of London. Fifth Session. 1850-51. 8vo. pp. 196.
7. On the Nature and Treatment of Softening of the Brain. By Richard Rowland, M. D., &c. London: Highley and Son, 1851. 8vo. pp. 137.
8. Handbuch der allgemeinen und speciellen Gewebelehre des menschlichen Körpers, für Aerzte und Studierende. Von Dr. J. Gerlach. Mainz. Janitsch, 1850. 8vo. pp. 500.
9. Transactions of the Medical Society of the State of Pennsylvania, at its Annual Session, held in the City of Philadelphia, May, 1851. (Published by the Society.) Vol. I. pp. 128.
10. Lectures on the Physical Diagnosis of the Diseases of the Lungs and Heart. By Herbert Davies, M. D., &c. London: Churchill, 1851. 12mo. pp. 288.
11. Die Hautkrankheiten durch anatomische Untersuchungen erläutert. Von Dr. Gustav Simon, dirigirendem Arzte am Charité-Krankenhaus, &c. Mit 9 Kupfertafeln. Zweite vermehrte Auflage. Berlin: G. Reimer, 1851. 8vo. pp. 420.
12. An Address, introductory to the Business of the Session, 1851-52, delivered in the Dublin School of Medicine, Peter-street. By E. Hamilton, A. B., M. B., &c. Dublin, 1851. Pamphlet, pp. 19.
13. The Pocket Formulary and Synopsis of the British and Foreign Pharmacopœias, comprising Standard and Approved Formulæ for the Preparations and Compounds employed in Medical Practice. By Henry Beasley. Fifth Edition. London: Churchill. 24mo. pp. 546.



14. Remarks on the Plea of Insanity, and on the Management of Criminal Lunatics. By W. Wood, M. D., &c., Medical Officer of Bethlem Hospital. London: Longmans, 1851. Pamphlet, pp. 70.

15. Physiological Researches. By Sir Benj. C. Brodie, Bart., D. C. L., F. R. S., &c. Collected and republished from the "Philosophical Transactions." London: Longmans, 1851. 8vo. pp. 146.

16. On Improving the Condition of the Insane. By H. Monro, M. B., &c. London: Churchill, 1851. Parts 1 and 2. Pamphlet, pp. 23 and 14.

17. A Brief Essay on the Nature and Treatment of Herniæ or Ruptures. By D. Tod, M. R. C. S., &c. London: Renshaw, 1851. Pamphlet, pp. 8.

18. Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Vol. XXXIV. London: Longmans, 1851. 8vo. pp. 361.

19. The Principles and Practice of Obstetric Medicine and Surgery, in reference to the Process of Parturition. With 120 illustrations on steel and wood. By Francis H. Ramsbotham, M. D., &c. Third Edition, enlarged. London: Churchill, 1851. 8vo. pp. 726.

20. Report of a Case of Acute Glanders, followed by Recovery; with Remarks, by F. W. Mackenzie, M. D., &c. (Reprinted from the London Journal of Medicine.) 1851. Pamphlet, pp. 13.

21. Observations on the Pathology and Treatment of Puerperal Insanity. By F. W. Mackenzie, M. D., &c. (Reprinted from the London Journal of Medicine.) 1851. Pamphlet, pp. 22.

22. Observations on Irritable Uterus; with Cases. By F. W. Mackenzie, M. D., &c. (Reprinted from the London Journal of Medicine.) 1851. Pamphlet, pp. 20.

23. Pathologische Histologie. Von Dr. Gottlieb Gluge. Jena. F. Manke, 1850. Folio, pp. 77. With Twelve Plates.

24. An Introductory Lecture, delivered at the London Hospital Medical School, at the commencement of the Session 1851-52. By Patrick Frazer, M. D., &c. (From the London Medical Gazette.) 1851. Pamphlet, pp. 16.

25. Handbuch der allgemeinen und speciellen Chirurgie. Von Dr. A. Wernher, Professor der Chirurgie und Pathologischen Anatomie, &c., in der Universität zu Giessen. Giessen: Ricker, 1851. Vol. II. p. 705 to end, and Vol. III. p. 1 to 80.

26. Mikroskopische Anatomie oder Gewebelehre des Menschen. Von Dr. A. Kölliker. Band II. Specielle Gewebelehre. Zweite Hälfte, 1. Abtheilung. Von der Verdauungs- und Respirationsorganen. Leipzig: Engelmann, 1851. 8vo. pp. 346.

27. Neuralgia; its various Forms, Pathology, and Treatment. Being the Jacksonian Prize Essay of the Royal College of Surgeons for 1850; with some additions. By C. Toogood Downing, M. D., M. R. C. S. London: Churchill, 1851. 8vo. pp. 375.

28. Lehrbuch der Chirurgie. Von Dr. Carl Emmert, Privatdocenten an der hochschule in Bern. Stuttgart: Franck, 1851. Vol. II. Part 1, pp. 208.

29. Speech at the Medico-Chirurgical Society, relative to Homœopathy with Notes on the Peculiar Theological Opinions of some Disciples of Hahnemann, &c. By J. Y. Simpson, M. D., &c. Edinburgh: Sutherland and Knox, 1851. Pamphlet, pp. 27.

30. Recherches Cliniques sur l'Eclampsie des Enfants. Par le Dr. C. Ozanam. Paris, 1851. Pamphlet, pp. 67.

31. De la Forme Grave de l'Ictère essentiel. Par le Dr. Charles Ozanam. Paris: Rignoux, 1849. 8vo. pp. 103.



32. *The Descriptive and Surgical Anatomy of the Arteries, and Relative Anatomy of the Veins and Nerves of the Human Body.* By J. H. Corbett, M. D., Professor of Anatomy and Physiology to the Apothecaries' Hall of Ireland. Dublin: Fannin and Co., 1852. 12mo. pp. 353.

33. *Pharmacy in Sweden.* By Dr. N. P. Hamberg, Assistant Professor of Pharmacy to the Royal Caroline Institution, and to the Pharmaceutical Institution of Stockholm. London, 1851. (Reprinted from the *Pharmaceutical Journal*.)

34. *The Structure and Functions of the Human Eye, with the Effects of Artificial Light upon it, and the best Means of preserving Sight.* By Samuel Browne, M. R. C. S., &c. Belfast: Agnew, 1852. Pamphlet, pp. 40.

35. *The Medical Aspects of Death, and the Medical Aspects of the Human Mind.* By James B. Harrison, M. R. C. S. L., &c. London: Longmans, 1852. Foolscap, 8vo. pp. 165.

36. *The Madras Journal of Medical Science.* Conducted exclusively by Subordinates of the Madras Medical Service. Edited by Messrs. G. W. Flynn and G. Norton, Assistant Apothecaries, Madras Medical Establishment. No. I. October, 1851. To be published bi-Monthly. 8vo. pp. 64.

37. *Irish Ethnology, socially and politically considered, embracing a general Outline of the Celtic and Saxon Races; with practical inferences.* By George Ellis, M. B., T. C. D., F. R. C. S. I. Dublin: Hodges and Smith, 1852. Foolscap 8vo. pp. 156.

38. *The Dictionary of Domestic Medicine and Household Surgery.* By Spencer Thomson, M. D., &c. London: Groombridge, 1852. Part I. Royal 12mo.

39. *Twelfth Annual Report of the Crichton Royal Institution for Lunatics.* Dumfries, 1851. Pamphlet, pp. 40.

40. *Lectures on the Diseases of Infancy and Childhood.* By Charles West, M. D., &c. Second Edition, enlarged. London: Longmans, 1852. 8vo. pp. 559.

41. *Lectures on Materia Medica and Therapeutics.* Delivered in the College of Physicians and Surgeons of the University of the State of New York. By J. B. Beck, M. D., late Professor of Materia Medica. Prepared for the Press by his friend, C. R. Gilman, M. D. New York: S. & W. Wood, 1851. 8vo. pp. 581.

42. *On Rupture of the Perineum and its Treatment.* Illustrated by Cases. Read before the Medical Society of London, by Isaac B. Brown, F. R. C. S., &c. London: Churchill, 1852. Pamphlet, pp. 30.

43. *Medicina Mechanica; or, the Theory and Practice of Active and Passive Exercises and Manipulations, considered as a Branch of Therapeutics, and as adapted both to the Treatment and Cure of many Forms of Chronic Disease.* By J. W. F. Blundell, M. D. London: Churchill, 1852. 12mo. pp. 292.

## BOOKS AND PERIODICALS WITH WHICH THE DUBLIN QUARTERLY JOURNAL IS EXCHANGED.

### GREAT BRITAIN.

1. *The British and Foreign Medico-Chirurgical Review and Journal of Practical Medicine.* Published Quarterly. London: Churchill, and Highley. (Not yet received.)

2. *The Edinburgh Medical and Surgical Journal; exhibiting a concise View of the latest and most important Discoveries in Medicine, Surgery, and Pharmacy.* Published Quarterly. Edinburgh: Black. (Received No. 190.)



3. The Retrospect of Medicine, being a half-yearly Journal, containing a retrospective View of every Discovery and practical Improvement in the Medical Sciences. Edited by W. Braithwaite. London: Simpkin and Co. (Received Vol. XXIV.)

4. The Half-Yearly Abstract of the Medical Sciences, being a practical and analytical Digest of the principal British and Continental Medical Works, &c. Published Half-Yearly. Edited by W. H. Ranking, M. D. London: Churchill. (Not yet received.)

5. Guy's Hospital Reports. London: Highley. (Received Vol. VII. Part 2.)

6. Pharmaceutical Journal and Transactions. Published Monthly. London. Edited by Jacob Bell. (Received regularly.)

7. The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. Conducted by Sir David Brewster, Richard Taylor, Sir Robert Kane, and William Francis, Ph. D. Published Monthly. London: Taylor. (Received regularly.)

8. Monthly Journal of Medical Science. Edinburgh: Sutherland and Knox. (Received regularly.)

9. The Chemist, a Monthly Journal of Chemical Philosophy and of Chemistry. Edited by C. and J. Watt. London: Eicke. (Received regularly.)

10. Medical Times and Gazette. Published Weekly. London: John Churchill. (Received regularly.)

11. Provincial Medical and Surgical Journal. Edited by W. H. Ranking, M. D., and J. H. Walsh, F. R. C. S. E. Published Fortnightly. London: Churchill. Worcester: Deighton and Co. (Received regularly.)

12. London Journal of Medicine, a Monthly Record of the Medical Sciences. London: Taylor, Walton, and Maberly. (Received regularly.)

13. The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. Published Quarterly. London: Churchill. (Received No. 17.)

14. The Athenæum—Journal of English and Foreign Literature, Science, &c. Published Weekly. London. (Received regularly.)

15. The Westminster Review. Published Quarterly. London: John Chapman. (Received No. 111.)

#### AMERICA.

16. The American Journal of the Medical Sciences. Edited by Isaac Hays, M. D. Published Quarterly. Philadelphia: Lea and Blanchard. (Not yet received.)

17. The Medical Examiner and Record of Medical Science. Edited by F. G. Smith, M. D., and J. B. Biddle, M. D. Published Monthly. Philadelphia: Lindsay and Blakiston. (Received regularly.)

18. The New York Journal of Medicine and the Collateral Sciences. Edited by S. S. Purple, M. D. Published Monthly. New York: Hudson. (Received Vol. VII. Nos. 2 and 3; Vol. V. No. 3, and Vol. VI. Nos. 1 and 3 not received.)

19. The American Journal of Science and Arts; conducted by Professors Silliman and B. Silliman, Jun., and J. D. Dana. Published Bi-monthly. New Haven. (Received No. 36.)

20. The American Journal of Insanity. Edited by the Officers of the New York State Lunatic Asylum, Utica. Published Quarterly. (Vol. VI. No. 1, and Vol. VII. Nos. 3 and 4 not received.)

21. The American Journal of Dental Science. Edited by C. A. Harris, M. D. Published Quarterly. (Received Vol. I. Nos. 3 and 4, Vol. II. No. 1.)



22. The Charleston Medical Journal and Review. Edited by D. J. Cain, M. D., and F. P. Porcher, M. D. Published Bi-monthly. Charleston: Walker and James. (Received Nos. 5 and 6, Vol. VI.; No. 1 not received.)

23. The Boston Medical and Surgical Journal. Published Weekly. Boston: Clapp. (Received regularly. No. 1230 imperfect.)

24. Southern Medical Reports. Edited by D. E. Fenner, M. D. To be published Annually. New Orleans: Norman. (Received Vol. II. 1851.)

25. The Stethoscope and Virginia Medical Gazette. Edited by P. C. Gooch, M. D. Published Monthly. Richmond: Virginia. (Received No. 10; Nos. 2 to 5 not received.)

26. The Ohio Medical and Surgical Journal. Edited by R. L. Howard, M. D. Published Bi-monthly. Columbus: Riley and Co. (Not received.)

27. The British American Medical and Physical Journal. Published Monthly. Montreal. (No Number received since July, 1851; therefore, removed from our Exchange List.)

28. The Upper Canada Journal of Medical, Surgical, and Physical Science. Published Monthly. Toronto. (No Number received since July, 1851; therefore, removed from our Exchange List.)

#### FRANCE AND BELGIUM.

29. Gazette Médicale de Paris. Published Weekly. Paris. (Received regularly.)

30. Nouvelle Encyclographie des Sciences Médicales. Publiée par une Société de Médecins. Published Monthly. (Received Vols. VII., VIII., IX., and X., for 1851.)

31. Journal de Chimie Médicale, de Pharmacie, de Toxicologie, et Revue des nouvelles, scientifiques, nationales et étrangères, &c. Published Monthly. Paris: Labé. (Received regularly.)

32. Journal de Pharmacie et de Chimie, &c. Published Monthly. Paris: Victor Masson. (Received regularly.)

33. L'Union Médicale, Journal des intérêts scientifiques et pratiques, moraux et professionnels du Corps médical. Published three times a Week. Paris. (Received regularly.)

34. La Lancette Française, Gazette des Hôpitaux civils et militaires. Published three times a Week. Paris. (Received regularly.)

35. Revue Médicale Française et étrangère, Journal des Progrès de la Médecine Hippocratique. Published twice a Month. Par J. B. Cayol. Paris. (Received regularly.)

36. Revue Médico-Chirurgicale de Paris. Sous la Direction de M. Malgaigne. Published Monthly. (Received regularly.)

37. Archives générales de Médecine; Journal Complémentaire des Sciences Médicales. Published Monthly. Paris: Labé. (Received regularly.)

38. Bulletin de l'Académie Nationale de Médecine. Published Monthly. Paris: Baillière. (Received Vol. XV.)

39. Journal des Connaissances Médico-Chirurgicales. Published twice a Month. Paris: Dr. A. Martin Lauzer. (Received regularly, except the Numbers for July 15 and October 15, 1851.)

40. Journal de Médecine et de Chirurgie Pratiques a l'Usage des Médecins Praticiens. Published Monthly. Par Lucas Champonnière. Paris. (Received regularly.)

41. Recueil de Médecine Vétérinaire Pratique. Published Monthly. Paris: Labé. (Received Vol. VIII. Nos. 8, 9, and 10. No. 11 of Vol. VII. not received.)



42. *Journal des Connaissances Médicales pratiques et de Pharmacologie.* Published twice a Month. Paris. (Received regularly.)

43. *Annales Médico-Psychologiques.* Par MM. Baillarger, Brierre de Boismont, et Cerise. Published Quarterly. Paris: Victor Masson. (Received regularly.)

44. *Bulletin Général de Thérapeutique, Médicale et Chirurgicale.* Recueil pratique. Publiée par le Docteur Debout. Published twice a Month. Paris. (Received regularly.)

45. *Repertoire de Pharmacie.* Recueil pratique. Par M. le Dr. Bouchardat. Published Monthly. (Received regularly.)

46. *Annales des Maladies de la Peau et de la Syphilis.* Publiées par le Dr. Alphée Cazenave et le Dr. M. Chausit. Published Monthly. Paris. (Received regularly.)

47. *Gazette Médicale de Strasbourg.* Published Monthly. (Received regularly.)

48. *Gazette Médicale de Montpellier.* Par le Docteur Chrestien. Published Monthly. (Received Vol. XII., Nos. 7, 8, and 9; Nos. 2 and 5 not received.)

49. *Annales d'Oculistique,* publiées par le Dr. Florent Cunier, Bruxelles Published Quarterly. (Received Vol. XXVI. Nos. 1, 2, and 3.)

50. *Annales et Bulletin de la Société de Médecine de Gand.* Published Monthly. (Received Part 8, for 1851.)

## GERMANY.

51. *Zeitschrift für rationelle Medicin;* herausgegeben Von Dr. J. Henle und Dr. C. Pfeufer, Professoren der Medizin an der Universität zu Heidelberg. Published Monthly. (Received Vol. I. Part 2, of the New Series.)

52. *Medecinische Jahrbücher des Kaiserliche Königlichen Oesterreichischen Staats.* Wien. (Not received.)

53. *Oesterreichische Medicinische Wochenschrift als Ergänzungsblatt der Medicinischen Jahrbücher, &c.* (Not received.)

54. *Vierteljahrschrift für die praktische Heilkunde,* herausgegeben von der medicinischen Facultät in Prag. Published Quarterly. Karl André. (Received Parts 1 and 3, 1851. Parts 2 and 3, for 1850, not received.)

55. *Annalen der Chemie und Pharmacie.* Herausgegeben von F. Wöhler und J. Liebig. Published Monthly. Heidelberg. (Received Vol. LXXIX. Part 3, and Vol. LXXX. Part 1.)

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57. *Wiener Medizinische Wochenschrift.* Published Weekly. Vienna. (Received Nos. 1 to 13, and Nos. 27 to 33, for 1851.)

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62. Annali Universali di Medicina. Compilati dal Dottore Carlo-Ampe-lio Calderini. Milan. Published Monthly. (Not received.)

63. Il Raccoglitore Medico di Fano; Giornale di Medicina e Chirurgia. Dal Dott. Malagodi e Franceschi. Published twice a Month. (Received regularly, except No. 5, for 1851.)

64. Osservatore Medico di Napoli. Published twice a Month. (Nos. 17 and 23 not received.)

65. Gazzetta Medica Italiana Federativa Toscana. Florence. Published Weekly. (Received all the Nos. of the New Series, except Nos. 10 to 36.)

66. Bulletino delle Scienze Mediche. Publicato per cura della Società Medico-Chirurgica di Bologna. Published Monthly. (Received Parts for May to September, 1851. The April Number not received.)

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THE  
DUBLIN QUARTERLY JOURNAL  
OF  
MEDICAL SCIENCE.

Contents.

No. XXVI.—MAY 1, 1852.

PART I.—ORIGINAL COMMUNICATIONS.

	Page.
ART. X.—Observations on the Symptoms resulting from an Undescended Testicle, which were of so painful a Nature as to necessitate its Removal. By JOHN HAMILTON, Surgeon to the Richmond Hospital, Examiner in Surgery to the Queen's University in Ireland, . . . . .	257
ART. XI.—Aneurisms of the Arteria Innominata ; their History and Differential Diagnosis from Aneurisms of the Arch of the Aorta. By T. S. HOLLAND, M. D., M. R. C. S. L., Corresponding Member of the Société Anatomique, and of the Parisian Medical Society, Lecturer on Pathological Anatomy and Histology, Cork. ( <i>Continued from p. 96</i> ), . . . . .	266
ART. XII.—Notices of the principal Diseases observed on board the Steamers of the Peninsular and Oriental Steam Packet Company, in the Mediterranean and Indian Seas, during a period of nearly Seven Years. By CHARLES F. MOORE, M. D., L.R.C.S.I., Surgeon of the "Ripon," . . . . .	299
ART. XIII.—Further Observations on Fractures in the Vicinity of the Ankle-Joint ; the Removal of Spiculæ of Bone, &c. By RICHARD G. H. BUTCHER, F. R. C. S. I., Examiner on Anatomy and Physiology in the Royal College of Surgeons in Ireland, Surgeon to Mercer's Hospital, . . . . .	329
On the Removal of Spiculæ of Bone in Comminuted Fracture,	335
ART. XIV.—On the Mechanism of the Acoustic Phenomena of the Circulation of the Blood, with an Exposition of a new Element in the Causation of the First Sound of the Heart. By ARTHUR LEARED, M. B. T. C. D., L. R. C. S. I. ; Physician to the Oulart Dispensary, Wexford ; Ex-Clinical Assistant to the Meath Hospital, Dublin ; late Resident Physician's Assistant, Hospital for Consumption and Diseases of the Chest, Brompton, London, &c.,	338



# CONTENTS.

	Page.
ART. XV.—Surgical Observations. By CHRISTOPHER FLEMING, M. D., M. R. I. A., Surgeon to the Richmond Hospital, &c., and SAMUEL WILMOT, M. D., Surgeon to Steevens' Hospital, &c., .	363
I.—Hematocoele of the Tunica Vaginalis Testis, . . . .	ib.
II.—Diffuse Inflammation of the Scrotum, . . . .	368
III.—Acute Inflammation of the Tunica Vaginalis Testis, . .	373

## PART II.—REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. Recent French Midwifery Instruments, . . . . .	382
I. Note sur le Redresseur Utérin (Pessaire Intra-Utérin) Articulé, et sur son Emploi dans le Traitement radical des Déplacements de la Matrice. Par M. Valleix, Médecin de l'Hôpital Beaujon, &c.	
II. Mode de Traitement très-simple des Rétroversions de l'Utérus,—Réducteur à Air. Par M. le Docteur A. Favrot.	
2. On the Diseases of the Bladder and Prostate Gland. By William Coulson, Surgeon to St. Mary's Hospital, &c., . . .	388
3. Medical Lexicon; a Dictionary of Medical Science, containing a Concise Explanation of the various Subjects and Terms of Physiology, Pathology, Hygiene, Therapeutics, Pharmacology, Obstetrics, Medical Jurisprudence, &c., with the French and other Synonymes. Notices of Climate and of Celebrated Mineral Waters; Formulæ for various Official, Empirical, and Dietetic Preparations, &c. By Robley Dunglison, M. D., Professor of Institutes of Medicine, &c., in the Jefferson Medical College, Philadelphia, &c. Eighth Edition, . . . .	402
4. Lettres sur la Syphilis, à M. le Docteur Amédée Latour, Rédacteur en chef de l'Union Médicale. Par M. Ricord, . . .	403
5. On Rupture of the Perineum, and its Treatment. By Isaac Baker Brown, F. R. C. S., . . . . .	428
6. On the Fallacies of Homœopathy, and the Imperfect Statistical Inquiries on which the Results of that Practice are estimated. By C. H. F. Routh, M. D., M. R. C. S., Physician to the St. Pancras Royal General Dispensary; one of the Secretaries of the Medical Society of London; Corresponding Member to the Royal Academy of Surgery of Madrid, &c. &c., . . .	429
7. Recent Works on Normal and Pathological Histology, . . .	432
I. Descriptive and Illustrated Catalogue of the Histological Series contained in the Museum of the Royal College of Surgeons of England. Vol. I. Elementary Tissues of Vegetables and Animals. .	
II. Handbuch der Allgemeinen und Speciellen Gewebelehre des Menschlichen Körpers für Aertze und Studirende. Von Dr. J. Gerlach.	
Handbook of General and Special Histology of the Human Body, for Practitioners and Students. By J. Gerlach.	
III. Mikroskopische Anatomie oder Gewebelehre des Menschen. Von Dr. A. Kölliker, Professor der Anatomie und Physiologie in Würzburg. Zweiter Band: Specielle Ge-	



webelehre. Erste Hälfte: Von der Haut, den Muskeln, Knochen, und Nerven. Zweite Hälfte: 1. Abtheilung. Von den Verdauungs—und Respirationsorganen.

Microscopic Anatomy or Histology of Man. By Dr. A. Kölliker, Professor of Anatomy and Physiology in Wurtzburg. Second Volume: Special Histology. First Half: The Skin, Muscles, Bones, and Nerves. Second Half—First Division: The Digestive and Respiratory Organs.

- iv. C. Canstatt's Jahresbericht über die Fortschritte der Gesamten Medicin in allen Ländern im Jahre, 1850. Redigirt von Dr. Eisenmann.

C. Canstatt's Annual Report on the Contributions to General Medicine in all Countries. For the year 1850. Edited by Dr. Eisenmann.

- v. Zeitschrift für Rationelle Medicin. Herausgegeben von Dr. J. Henle und Dr. C. Pfeufer, Professoren der Medicin an den Universität zu Heidelberg. Neue Folge.

Journal of Rational Medicine. Edited by Dr. J. Henle and Dr. C. Pfeufer, Professors of Medicine in the University of Heidelberg. New Series.

- vi. Denkschriften der Kaiserlichen Akademie der Wissenschaften. Erster Band; und Tafeln, zu den Denkschriften, &c. Transactions of the Royal Academy of Sciences of Vienna.

- vii. Anormal Nutrition in Articular Cartilages; with Experimental Researches on the Lower Animals. By P. Redfern, M. D., &c.

- viii. Pathologische Histologie. Von Dr. Gottlieb Gluge, Professor der Physiologie und Pathologischen Anatomie an der Universität zu Brüssel, &c.

Pathological Histology. By Dr. Gottlieb Gluge, Professor of Physiology and Pathological Anatomy in the University of Brussels.

- ix. Traité Pratique des Maladies Cancéreuses et des Affections Curables Confondues avec le Cancer. Par H. Lebert, Docteur en Médecine, Chevalier de la Légion d'Honneur, &c.

8. On the Pathology and Treatment of Stricture of the Urethra. By John Harrison, F. R. S. C. E., &c., . . . . . 448

9. The Dictionary of Domestic Medicine and Household Surgery. By Spencer Thomson, M. D., L. R. C. S. Edinburgh, . . . 450

10. Gerichtliche Section endes menschlichen Körpers Dritte bedeutend vermehrte und verbesserte; zum Gebrauch für Aertze, Wundärtze, und Juristen bearbeitete auflage. Von Dr. Carl Ernst Bock, Professor der pathologischen Anatomie an der Universität Leipzig, . . . . . 451

Juridical Sections of the Human Body, for the use of Physicians, Surgeons, and Jurists. By Dr. Bock. Third Edition, enlarged and improved.

11. Lectures on the Diseases of Infancy and Childhood. By Charles West, M. D., &c. Second Edition, enlarged, . . . . . 458



## PART III.—MEDICAL MISCELLANY.

## Proceedings of the Pathological Society of Dublin.

	Page.
Partial Displacement of the Sternal End of each Clavicle. By Dr. Stokes, . . . . .	459
Purulent Cysts in the Heart. By Dr. Mayne, . . . . .	460
Cirrhosis of the Liver; Pulmonary Apoplexy. By Dr. Gordon, . . . . .	461
Cirrhosis of the Right Lung; Obstruction of the Right Pulmonary Artery. By Dr. M'Dowell, . . . . .	462
Morbus Coxæ, with displacement of the Head of the Fe- mur. By Mr. Hamilton, . . . . .	464
Dislocation of the Tibia and Fibula backwards at the Ankle. By Professor R. W. Smith, . . . . .	465
Report on the Pathological Museum of the Belfast Medical Society. By A. G. Malcolm, M. D., one of the Vice-Presidents of the Society. ( <i>Continued from vol. xi. p. 477</i> ), . . . . .	472
Case of Peritonitis following the Rupture of an Ovarian Tumour in a Female two months pregnant; Recovery. By Jolliffe Tuf- nell, F. R. C. S. I., M. R. I. A., Surgeon to the City of Dub- lin Hospital, &c. &c., . . . . .	480
Case of Encysted Tumour of the left Labium Externum, removed by Operation. By Christopher S. Black, M. D., L. R. C. S. I., one of the Medical Officers of the Belfast Dispensary, . . . . .	486
Case of Ramollissement of the Brain. By J. H. Haire, Surgeon, R. N., . . . . .	488
Selections from British and Foreign Periodicals.	
On Rupture of the Funis, in its relation to Legal Medi- cine. By Dr. J. Spaeth, Assistant to the Imperial Lying- in Hospital, Vienna, . . . . .	490
Mode of Termination of the Nerves in the Skin of the Fingers. By Rudolph Wagner, . . . . .	492
On Flexion of Limbs as a Means of arresting Arterial Hæmorrhage. By Dr. Bobillier, of Dunkirk, . . . . .	493
On the Use of Iodine Injections. By Dr. Spengler, of Herborn, . . . . .	494
Special Pharmacopœia for Diseases of the Skin. By Alphée Cazenave, M. D., Physician to the Hôpital St. Louis, Paris. ( <i>Continued from p. 252</i> ), . . . . .	502

---

INDEX TO VOL. XIII., . . . . .	505
--------------------------------	-----



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2. Thomson's Conspectus of the British Pharmacopœias. Sixteenth Edition. Edited by E. L. Birkett, M. D., &c. London: Longmans, 1852. 24mo. pp. 216.

[*This standard little work has lost nothing in value in the hands of its present Editor.*]

3. On Narcotism by the Inhalation of Vapours. By John Snow, M. D., &c. (From the London Medical Gazette, 1852.) Pamphlet, pp. 47 and 12.

4. The Fourteenth Annual Report of the Suffolk Lunatic Asylum, 1851. Pamphlet, pp. 29.

5. Observations with Hutchinson's Spirometer. By C. Radclyffe Hall, M. D., &c. Worcester: 1851. Pamphlet, pp. 26.

6. Medical Lexicon; a Dictionary of Medical Science, containing concise Explanations of the various Subjects and Terms, with the French and other Synonymes; Notices of Climate and of celebrated Mineral Waters; Formulæ for various Officinal and Empirical Preparations, &c. By Robley Dunglison, M. D., &c. Seventh Edition, revised and greatly enlarged. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 927.

7. On the Fallacies of Homœopathy, and the Imperfect Statistical Inquiries on which the Results of that Practice are estimated. By C. H. F. Rquth, M. D., M. R. C. S., &c. London: Lewis, 1852. Pamphlet, pp. 85.

8. Pathological Anatomy considered in relation to Medical Science, being an Address delivered at the Royal Cork Institution, introductory to a Course on Pathological Anatomy and Histology. By J. S. Holland, M. D., &c. Cork: Bradford; Dublin: Hodges and Smith, 1852. Pamphlet, pp. 31.

[*An excellent address, happily conceived, and calculated to promote the Author's object by inculcating an interest in this all-important branch of Medicine.*]

9. On the Natural History, Physiological Actions, and Therapeutic Uses of Colchicum Autumnale; chiefly with reference to the Growth of the Plant, and the Chemical Changes it produces on the Blood and Urine. By J. M'Grigor MacLagan, M. D., Edinburgh, &c. Edinburgh: Sutherland and Knox, 1852. 8vo. pp. 56.

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10. The Cyclopædia of Anatomy and Physiology. Edited by R. B. Todd, M. D., F. R. C. S., &c. Part XLII. "Varieties of Mankind" to "Voice." London: Longmans, 1852.

11. A Bill for Regulating the Qualifications of Pharmaceutical Chemists. Ordered by the House of Commons to be printed, February 12, 1852.

12. Report of the Manchester Royal Lunatic Asylum, situated at Cheadly, Cheshire, in connexion with the Manchester Royal Infirmary. From June 25, 1850, to June 24, 1851. Pamphlet, pp. 19.

13. Contributions to the Treatment of Uterine Disease. By E. L. Falloon, Esq. (From the London Journal of Medicine, 1852.) pp. 9.

14. Researches and Observations on Scrofulous Disease of the External Lymphatic Glands. With Cases, showing its connexion with Pulmonary Consumption and other Diseases. By Thomas Balman, M. D., &c., one of the Medical Officers of St. Ann's Dispensary, Liverpool. London: Longmans, 1852. 8vo. pp. 189.



15. On the Diseases of the Bladder and Prostate Gland. By William Coulson, Surgeon to St. Mary's Hospital, &c. Fourth Edition, revised and enlarged. London: Churchill, 1852. 8vo. pp. 485.
16. Notes on Bright's Disease of the Kidney, as observed chiefly in the Clinical Ward of the Jamsetjee Jejeebhoy Hospital at Bombay. By C. Morehead, M. D. (From the Transactions of the Medical and Physical Society of Bombay.) 8vo. pp. 47.
17. A Treatise on the Diseases of the Chest; being a Course of Lectures delivered at the New York Hospital. By J. A. Sweet, M. D., &c. New York: Appleton and Co., 1852. 8vo. pp. 585.
18. Researches into the Pathology and Treatment of Deformities in the Human Body. By John Bishop, F. R. S., &c. London: Highley and Son, 1852. 8vo. pp. 266.
19. St. John's Fever Hospital, Limerick. Account of the Governors and Governesses of the above Institution, from January 5, 1851, to January 5, 1852.  
*[This is truly a Model Report, in a form which we should wish to see adopted by all Public Medical Charities, exhibiting at a glance the Receipts and Disbursements under their appropriate Headings.]*
20. Middlesex January General Quarter Sessions, 1852. The Final Report of the Committee appointed to provide an additional Pauper Lunatic Asylum, and Resolutions of the Court. Pamphlet, pp. 94.
21. On the Cerealia of Western Africa. By W. F. Daniell, M. D., F. R. C. S., &c. (From the Pharmaceutical Journal, for February, 1852.) Pamphlet, pp. 14.
22. Fourth Report of the Somerset County Asylum for Insane Paupers, from January 1, 1851, to the end of the Year. Wells. Pamphlet, pp. 50.
23. On the True and False Spermatorrhœa. By Dr. Pickford, of Heidelberg. Edited by Chirurgus. London: Churton, 1852. 8vo. pp. 82.
24. A Letter to the Right Hon. Sir George Grey, Bart, &c., on Medical Registration, and the present condition of the Medical Corporations. Second Edition. By Emeritus. London: Jackson, 1852. Pamphlet, pp. 38.
25. Observations in Surgery. By Benjamin Travers, Jun., F. R. C. S., &c. London: Longmans, 1852. 8vo. pp. 230.
26. The Principles and Practice of Surgery. Illustrated by numerous Engravings on Wood. By W. Pirrie, F. R. S. E., Regius Professor of Surgery in the Marischal College and University of Aberdeen. London: Churchill, 1852. 8vo. pp. 252.
27. The Hand; its Mechanism and Vital Endowments, as evincing Design. By Sir Charles Bell, K. G. H., &c. Fifth Edition, revised, with Woodcuts. London: John Murray, 1852. Post 8vo. pp. 428.  
*[A beautiful and extremely cheap edition of this most valuable and interesting work.]*
28. Chapters on Mental Physiology. By Henry Holland, M. D., F. R. S., &c. Founded chiefly on Chapters contained in "Medical Notes and Reflections," by the same Author. London: Longmans, 1852. 8vo. pp. 301.
29. Dictionnaire des Altérations et Falsifications des Substances Alimentaires, Médicamenteuses et Commerciales. Avec l'indication des Moyens de les Reconnaître. Par M. A. Chevallier. Tome Second. Paris: Béchét Jeune, 1852. 8vo. pp. 580.
30. An Account of two Cases in which Ovules or their Remains were discovered in the Fallopian Tubes of Unimpregnated Women, who had died during the Period of Menstruation. By H. Letheby, M. B. London, &c. (From the Philosophical Transactions, Part 1, for 1852.) Folio. With a Plate.



31. Asylums for the Insane. Observations upon the importance of establishing Public Hospitals for the Insane of the Middle and Higher Classes. With a brief Exposition of the Nature of Insanity, and the present provision for the Treatment of the Insane. By Thomas Dickson, L. R. C. S. E., &c., Manchester Royal Lunatic Hospital. London: Churchill, 1852. Pamphlet, pp. 62.

32. Hydropathy as applied to Acute Disease. Illustrated by Cases. By T. R. Armitage, M. B., &c. London: Churchill, 1852. Royal 12mo. pp. 178.

33. On the Pathology and Treatment of Stricture of the Urethra. By John Harrison, F. R. C. S. E., &c. London: Churchill, 1852. 8vo. pp. 104.

34. A Handbook of Organic Chemistry; being a new and greatly enlarged edition of the "Outlines of Organic Chemistry." For the Use of Students. By William Gregory, M. D., F. R. S. E., Professor of Chemistry in the University of Edinburgh. Third Edition, corrected and much extended. London: Taylor, Walton, and Maberly, 1852. Royal 12mo. pp. 532.

*[For all who wish to keep themselves au courant with the present advanced and daily advancing position of organic chemistry, we must recommend Dr. Gregory's new edition as indispensable: while we feel that he has done much to injure legitimate medicine by his mesmeric phantasies, we must acknowledge that his writings have advanced considerably what ought to be his immediate pursuit: ne sutor ultra crepidam.]*

35. Class-Book of Botany; being an Introduction to the Study of the Vegetable Kingdom. By J. H. Balfour, M. D., F. R. S. E., Professor of Botany in the University of Edinburgh. With upwards of 1000 Illustrations. Edinburgh: Adam and Charles Black, 1852. 8vo. pp. 357.

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1. The British and Foreign Medico-Chirurgical Review and Journal of Practical Medicine. Published Quarterly. London: Churchill, and Highley. (Received Nos. 17 and 18.)

2. The Edinburgh Medical and Surgical Journal; exhibiting a concise View of the latest and most important Discoveries in Medicine, Surgery, and Pharmacy. Published Quarterly. Edinburgh: Black. (Received No. 189.)

3. The Retrospect of Medicine, being a half-yearly Journal, containing a retrospective View of every Discovery and practical Improvement in the Medical Sciences. Edited by W. Braithwaite. London: Simpkin and Co.

4. The Half-Yearly Abstract of the Medical Sciences, being a practical and analytical Digest of the principal British and Continental Medical Works, &c. Published Half-Yearly. Edited by W. H. Ranking, M. D. London: Churchill. (Received Vol. XIV.)

5. Guy's Hospital Reports. London: Highley.

6. Pharmaceutical Journal and Transactions. Published Monthly. London. Edited by Jacob Bell. (Received regularly.)

7. The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. Conducted by Sir David Brewster, Richard Taylor, Sir Robert Kane, and William Francis, Ph. D. Published Monthly. London: Taylor. (Received regularly.)

8. Monthly Journal of Medical Science. Edinburgh: Sutherland and Knox. (Received regularly, but not for several weeks after Publication.)

9. *The Chemist*, a Monthly Journal of Chemical Philosophy and of Chemistry. Edited by C. and J. Watt. London: Eické. (Received regularly.)

10. *Medical Times and Gazette*. Published Weekly. London: John Churchill. (Received regularly.)

11. *Provincial Medical and Surgical Journal*. Edited by W. H. Ranking, M. D., and J. H. Walsh, F. R. C. S. E. Published Fortnightly. London: Churchill. Worcester: Deighton and Co. (Received regularly.)

12. *London Journal of Medicine*, a Monthly Record of the Medical Sciences. London: Taylor, Walton, and Maberly. (Received regularly.)

13. *The Journal of Psychological Medicine and Mental Pathology*. Edited by Forbes Winslow, M. D. Published Quarterly. London: Churchill. (Received No. 18.)

14. *The Athenæum—Journal of English and Foreign Literature, Science, &c.* Published Weekly. London. (Received regularly.)

15. *The Westminster Review*. Published Quarterly. London: John Chapman. (Last No. not received.)

#### AMERICA.

16. *The American Journal of the Medical Sciences*. Edited by Isaac Hays, M. D. Published Quarterly. Philadelphia: Lea and Blanchard. (Received Nos. 44 and 45.)

17. *The Medical Examiner and Record of Medical Science*. Edited by F. G. Smith, M. D., and J. B. Biddle, M. D. Published Monthly. Philadelphia: Lindsay and Blakiston. (Received regularly.)

18. *The New York Journal of Medicine and the Collateral Sciences*. Edited by S. S. Purple, M. D. Published Monthly. New York: Hudson. (Not received.)

19. *The American Journal of Science and Arts*; conducted by Professors Silliman and B. Silliman, Jun., and J. D. Dana. Published Bi-monthly. New Haven. (Received Nos. 37 and 38.)

20. *The American Journal of Insanity*. Edited by the Officers of the New York State Lunatic Asylum, Utica. Published Quarterly. (Not received.)

21. *The American Journal of Dental Science*. Edited by C. A. Harris, M. D. Published Quarterly. (Not received.)

22. *The Charleston Medical Journal and Review*. Edited by D. J. Cain, M. D., and F. P. Porcher, M. D. Published Bi-monthly. Charleston: Walker and James. (Not received.)

23. *The Boston Medical and Surgical Journal*. Published Weekly. Boston: Clapp. (Received regularly. No. 1230 imperfect.)

24. *Southern Medical Reports*. Edited by D. E. Fenner, M. D. To be published Annually. New Orleans: Norman.

25. *The Stethoscope and Virginia Medical Gazette*. Edited by P. C. Gooch, M. D. Published Monthly. Richmond: Virginia. (Received No. 2, Vol. II.)

26. *The Ohio Medical and Surgical Journal*. Edited by R. L. Howard, M. D. Published Bi-monthly. Columbus: Riley and Co. (Received Vol. IV. No. 3; No. 2 not received.)

27. *The Canada Medical Journal and Monthly Record*. Edited by R. L. Macdonnell, M. D., and A. H. David, M. D. Montreal. (Received No. 1.)

#### FRANCE AND BELGIUM.

28. *Gazette Médicale de Paris*. Published Weekly. Paris. (Received regularly.)



29. Nouvelle Encyclographie des Sciences Médicales. Publiée par une Société de Médecins. Published Monthly. (Received Vols. XI. and XII. for 1851, and Vols. I. and II., for 1852).

30. Journal de Chimie Médicale, de Pharmacie, de Toxicologie, et Revue des nouvelles, scientifiques, nationales et étrangères, &c. Published Monthly. Paris: Labé. (Received regularly.)

31. Journal de Pharmacie et de Chimie, &c. Published Monthly. Paris: Victor Masson. (Received regularly.)

32. L'Union Médicale, Journal des intérêts scientifiques et pratiques, moraux et professionnels du Corps médical. Published three times a Week. Paris. (Received regularly.)

33. La Lancette Française, Gazette des Hôpitaux civils et militaires. Published three times a Week. Paris. (Received regularly.)

34. Revue Médicale Française et étrangère, Journal des Progrès de la Médecine Hippocratique. Published twice a Month. Par J. B. Cayol. Paris. (Received regularly.)

35. Revue Médico-Chirurgicale de Paris. Sous la Direction de M. Malgaigne. Published Monthly. (Received regularly.)

36. Archives générales de Médecine; Journal Complémentaire des Sciences Médicales. Published Monthly. Paris: Labé. (Received regularly.)

37. Bulletin de l'Académie Nationale de Médecine. Published Monthly. Paris: Baillière.

38. Journal des Connaissances Médico-Chirurgicales. Published twice a Month. Paris: Dr. A. Martin Lauzer. (Received regularly.)

39. Journal de Médecine et de Chirurgie Pratiques a l'Usage des Médecins Praticiens. Published Monthly. Par Lucas Champonnière. Paris. (Received regularly.)

40. Recueil de Médecine Vétérinaire Pratique. Published Monthly, Paris: Labé. (Received Vol. VIII., Nos. 11 and 12, and Vol. IX., Nos. 1 and 2. No. 11 of Vol. VII. not received.)

41. Journal des Connaissances Médicales pratiques et de Pharmacologie. Published twice a Month. Paris. (Received regularly.)

42. Annales Médico-Psychologiques. Par MM. Baillarger, Brierre de Boismont, et Cerise. Published Quarterly. Paris: Victor Masson. (Received regularly.)

43. Bulletin Général de Thérapeutique, Médicale et Chirurgicale. Recueil pratique. Publiée par le Docteur Debout. Published twice a Month. Paris. (Received regularly.)

44. Répertoire de Pharmacie. Recueil pratique. Par M. le Dr. Bouchardat. Published Monthly. (Received regularly.)

45. Annales des Maladies de la Peau et de la Syphilis. Publiées par le Dr. Alphée Cazenave et le Dr. M. Chausit. Published Monthly. Paris. (Received regularly.)

46. Gazette Médicale de Strasbourg. Published Monthly. (Received regularly.)

47. Gazette Médicale de Montpellier. Par le Docteur Chrestien. Published Monthly. (Received Vol. XII., Nos. 10, 11, and 12; Nos. 2 and 5 not received.)

48. Revue Thérapeutique du Midi, &c. Rédigée par M. le Dr. Saurel et M. le Dr. Barbaste. Published twice a Month. Montpellier. (Received regularly.)

49. *Annales d'Oculistique*, publiées par le Dr. Florent Cunier, Bruxells. Published Quarterly. (Received Vol. XXVII. Nos. 1 and.)

50. *Annales et Bulletin de la Société de Médecine de Gand*. Published Monthly. (Not received.)

## GERMANY.

51. *Zeitschrift für rationelle Medicin*; herausgegeben Von Dr. J. Henle and Dr. C. Pfeufer, Professoren der Medizin an der Universität zu Heidelberg. Published Monthly. (Received Vol. I. Part 3, and Vol. II. Part 1.)

52. *Tagsberichte über die Fortschritte der Natur-und Heilkunde*, erstattet von R. Froriep. Weimar. (Received Nos. 314 to 468; Nos. 30 to 313 not received.)

53. *Zeitschrift der Kais. Kön. Gesellschaft der Aerzte zu Wien*—Redacteur: Professor, Dr. Ferdinand Hebra. (Received Vols. VI. and VII., and Vol. VIII. Nos. 1 and 2.)

54. *Vierteljahrschrift für die praktische Heilkunde*, herausgegeben von der medicinischen Facultät in Prag. Published Quarterly. Karl André. (Received Part 1 for 1852. Parts 2 and 4, 1851, and Parts 2 and 3, 1850, not received.)

55. *Annalen der Chemie und Pharmacie*. Herausgegeben von F. Wöhler und J. Liebig. Published Monthly. Heidelberg. (Received Vol. LXXXI. Parts 1 and 2, and Vol. LXXX. Part 2.)

56. *Canstatt's Jahresbericht über die Fortschritte der gesamten Medizin in allen Ländern*. Redigirt von Dr. Eisenmann. Erlangen: Ferdinand Enke. (Received Parts 4 and 5, for 1850.)

57. *Wiener Medizinische Wochenschrift*. Published Weekly. (Received Nos. 34 to 39, for 1851.)

58. *Journal für Kinderkrankheiten*. Herausgegeben von Dr. Fr. J. Behrend und Dr. A. Hildebrand. Published Monthly. Erlangen: Palm und Enke. (Received Vol. XVII., Parts 5 and 6, and Vol. XVIII., Parts 1 and 2.)

## DENMARK.

59. *Bibliothek for Læger, Tredie Række*. Udgivet af Direktionen for de classenske Literaturselskab. Redigeret af H. Selmer. Published Monthly. Kjobenhavn. (Not received.)

## NORWAY.

60. *Norsk Magazin, for Lægevidenskaben*, udgivet af det medicinske Selskab i Christiania. Redigeret af W. Boeck. Faye. A. W. Münster. Lund. Voss. Published Monthly. Christiania: Feilberg & Landmark. (Not received.)

## SWEDEN.

61. *Hygiea, Medicinsk och Pharmaceutisk Månads-Skrift*. Published Monthly. Stockholm: Fritze. (Parts 5 to 12, for 1851; Part 11, for 1850, and Parts 9 to 12, 1849, not received. This Periodical reaches us very irregularly.)

## ITALY.

62. *Il Raccoglitore Medico di Fano; Giornale di Medicina e Chirurgia*. Dal Dott. Malagodi e Franceschi. Published twice a Month. (Received regularly, except No. 5, for 1851.)

63. *Osservatore Medico di Napoli*. Published twice a Month. (Nos. 17 and 23, for 1851, and No. 1, for 1852, not received.)

64. *Gazzetta Medica Italiana Federativa Toscana*. Florence. Published Weekly. (Received all the Nos. of the New Series, except Nos. 32 to 36.)



65. *Buletino delle Scienze Mediche*. Publicato per cura della Società Medico-Chirurgica di Bologna. Published Monthly. (Received Parts for October to December, 1851, and January, 1852. The April Number, for 1851, not received.)

66. *Correspondenza Scientifica in Roma*. Published Weekly. (Received Nos. 29, 30, and 31, for 1852.)

67. *Giornale Veneto di Scienze Mediche*. Published Monthly. (Received Part for October, 1851.)

## SPAIN.

68. *Boletin de Medicina, Cirurgia, y Farmacia*; *Periodico oficial de la Sociedad Médica General de Socorros Mutuos*. Madrid. Published Weekly. (Received regularly, except No. 33.)

## NOTICES TO CORRESPONDENTS.

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COMMUNICATIONS which shall appear in our next Number have been received from Dr. Eben Watson of Glasgow, on "The Topical Treatment of Acute Inflammation of the Larynx and Trachea;" from Dr. Duchenne (de Boulogne), of Paris, "Electro-Physiological and Pathological Researches on the Individual Action and the Uses of the Muscles moving the Thumb and other Fingers;" from Staff Assistant-Surgeon W. F. Daniell, M. D., "On an Epidemic of Measles which prevailed among the Troops and the Natives at Accra;" and from Dr. Bowes Harrison, of Manchester, "On the Injurious Effects arising from the Manufacture of Lucifer Matches."

In consequence of the plan of our Journal, but a limited portion of each Number being allotted for Reviews, we have been hitherto unable to offer an opinion as to many works, more especially New Editions and Pamphlets, which are sent to us for Review; we have therefore decided to follow out the plan commenced in our present issue, of occasionally appending concise notices to the acknowledgment of their receipt in our List of Books Received. This arrangement will enable us to fulfil a duty to the Authors who forward to us their Publications, and will also render that part of our Journal, to a certain extent, a Bibliographical Record, which may prove of service to such of our readers as may desire to procure works on any special subject.

In our last Number a typographical error occurred in Dr. Lake's Case of Hernia of the Lung, the measurement of the wound should have been *two*, and not *ten* inches in length.

We have been latterly compelled, on several occasions, to decline releasing some of our American Exchanges, in consequence of the heavy postage which was charged upon them; this would be avoided by their being directed to our London Agents; we request the respective Editors to complete our sets by forwarding the deficient Numbers, as indicated in the Exchange List which precedes. The Northern European Journals reach us very irregularly. They should be transmitted for us to the care of "Messrs. Williams and Norgate, London." Our French, Belgian, Italian, and Spanish Correspondents are requested to communicate with us through "Docteur C. Higgins, 30, Rue Rivoli, Paris."



184

THE DUBLIN  
QUARTERLY JOURNAL  
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FEBRUARY 1, 1852.

PART I.  
ORIGINAL COMMUNICATIONS.

ART. I.—*On the Treatment of Fractures of the Femur.* By PHILIP BEVAN, M.D. T.C.D., F.R.C.S.I., M.R.I.A., Surgeon to Mercer's Hospital, Lecturer on Surgery in the Dublin School of Medicine, &c.

WHEN we recollect that one variety of fracture of the femur terminates almost invariably in the formation of a false joint, together with permanent lameness and shortening of the limb, and that in many other cases, notwithstanding great care and attention, shortening and eversion sometimes occur<sup>a</sup>; it cannot be a matter of surprise that a new apparatus should be proposed, with the view of improving our modes of treatment. It may be said that fracture of the femur can be treated successfully by the plans at present in use, and this is, no doubt, true in many

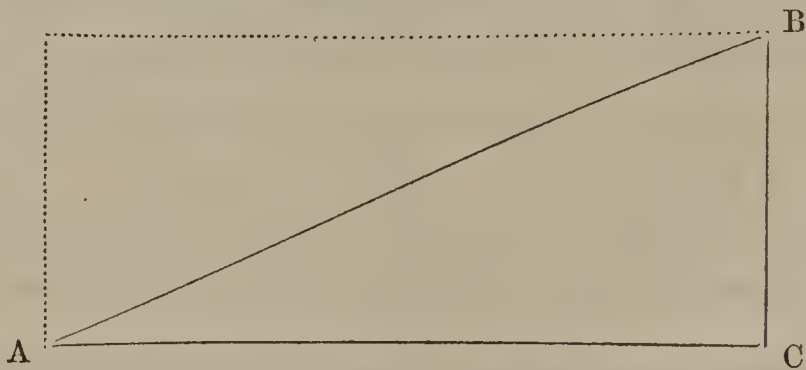
<sup>a</sup> See a case lately published in the *Lancet*, where an eminent surgeon congratulates himself on curing a case in which the limb remained one inch shorter, and curved outwards. November 23, 1850.

cases, but it is equally true that some deformity frequently results, especially in cases of oblique fracture, and in those situated near the joints. Indeed, Chelius says that fracture of the thigh is most commonly attended with deformity and shortening. There are two positions adopted for treating these fractures,—the flexed and the straight. It is not my intention to dwell on the former, as the advantages which the latter possesses over it have been completely proved in the able treatise published in this Journal by the late Dr. Houston<sup>a</sup>, and the flexed position, whether on the outside or on the double inclined plane, is, I believe, rarely adopted at present, except in a few cases, such as in fracture below the trochanter minor.

The different forms of apparatus for keeping up the extended position may all be considered as modifications or improvements of Dessault's splint, and are all liable to serious objections. In the first place, counter-extension is made by a bandage extending, with different degrees of obliquity, around the groin to the outside of the pelvis. Hence, owing to the obliquity of the direction of the force, there is a considerable loss of power<sup>b</sup>, and thus, a greater pressure is made on the perineum and groin than would be required if the force were

<sup>a</sup> First Series, vol. viii. p. 459.

<sup>b</sup> The line AB, which represents the perineal bandage, is equal in force and direction to the two lines AC and BC, and as the force applied in the direction AC can have no effect in keeping up extension and is therefore lost, it is obvious that



a force equal to, and in the same direction as BC, will have as much effect in keeping up extension as AB. Thus the saving of power will be one-half or one-third, according to the degree of obliquity of the direction of the bandage.



applied in a direct line. The amount of loss will vary with the obliquity, but it must be considerable in any arrangement. The pressure frequently causes excoriation and even ulceration of the fold of the thigh, or the patient, to relieve himself from the pain occasioned by it, loosens the bandage, and thus either delays or altogether prevents union. Secondly, the counter-extension is made by a yielding texture, which requires to be replaced or tightened several times during the progress of the case, thus disturbing the partially formed callus. Thirdly, the perineal bandage tends, in fracture of the neck of the bone, to separate the portion attached to the head from that connected with the shaft, and thus to keep at a distance the two broken fragments. The strap around the pelvis proposed by Sir Astley Cooper tends to remedy this defect, but it renders the apparatus more complicated, and both heats and galls the patient. I have no doubt that keeping the fragments of the neck of the femur from coming into close contact will diminish materially the chance of union in these fractures.

The mode of making extension in Dessault's and in Liston's splints is liable to equal objections. First, the force is applied obliquely, and therefore there is a loss of power; and secondly, it has great tendency to increase or keep up the rotation outwards of the limb, which this fracture usually produces. No doubt Boyer's mode of extension is a great improvement in this respect, but his screw is rather expensive and complicated. All the previous inventions require that the patient should lie on a perfectly resisting bed. This, in private, is of little importance, as we can use a hair mattress; but in hospital, to lie on the hard straw mattress for six or eight weeks is by no means a trifling evil, and, in old persons, is either absolutely impossible, or very liable to cause excoriation or sloughing of the sacrum.

I propose a single, broad, strong splint under the entire limb, concave, and padded at the upper part, to pass below the tuber ischii. One perpendicular, strong bar of iron, well pad-

ded, rises from the inner border, and is intended to rest against the ramus of the pubis, whilst another similar, but longer bar, is placed also perpendicularly on a level with the spine of the ilium, on the outside of the splint. To the lower part of the splint a moveable perpendicular iron plate is attached by means of a thumb-screw. This plate is perforated in the centre, and through it an endless screw passes, to which a foot-board and shoe, well padded, are attached. The perpendicular plate is merely united to the splint by a screw, which can be fixed at varying lengths, so as to adapt it to the various size of the thigh at different ages; and also to allow, if necessary, all traction on the limb to be relaxed instantaneously, should circumstances require it<sup>a</sup>.



The counter-extension is here made partly by the perpendicular iron pressing against the pubis, and partly by the edge of the splint pressing against the tuber ischii. I at first feared that the pubis would be galled; but as the principal pressure is against the ischium, the friction is so slight on this part as not to give the slightest inconvenience. The perpendicular iron at the spine of the ilium is of use, in supporting the pillows, and fixing one which should always be placed under the trochanter major, to keep it in contact with the neck of the bone, and pre-

<sup>a</sup> A represents a perpendicular perineal plate, well padded, and covered with chamois leather.

B, a similar one, placed opposite the spine of the ilium.

C, a moveable perpendicular plate, attached to the splint by a thumb-screw D, and capable of being moved, according to the length of the limb.

E, an endless screw, which is attached above to the foot-board of the boot, passes through an opening in the perpendicular plate, and can, by means of a nut placed below the plate, draw the foot-board down.



vent it from falling backwards behind its natural site. I originally intended that this should press against the spine of the ilium, but the varying breadth of the pelvis rendered this difficult; and I found that pressure against the pubis and tuber ischii was quite sufficient without it.

The extension is made by the screw below, which is attached to an iron foot-board, and this may either be connected to the foot by a boot or a figure of 8 bandage, or, what answers better, by a circular bandage applied around the ankle, above the malleoli, with a strong band to connect it to the foot-board.

It might be supposed that this extension would gall the ankle, but the force required to keep up the extension, when applied thus in a right line, is so slight, that little or no inconvenience results.

I need scarcely say how simple is the mode of adjusting this apparatus; in fact, having applied a bandage the entire length of the limb, the patient has merely to lie down on the splint, previously covered with a long pillow, with the pubis resting against the perineal plate, when, the extending bandage being applied, the ankle bound to the foot-board, and the screw tightened, the entire is complete. In a few cases of children, or unruly persons, a bandage to prevent the patient rising altogether off the splint might be required, but will rarely be necessary. A pad or pillow should be placed under the trochanter major to support it, keep it in contact with the neck of the bone, and assist in preventing rotation outwards.

The advantages which this apparatus presents are, I believe, numerous. 1st, It is remarkably simple. 2nd, The extension, or counter-extension, is made perpendicularly, and not obliquely, and, therefore, a much less amount of force is required than by any other apparatus, no power being lost. 3rd, No pressure is made on the front of the thigh. 4th, The extension can be made very gradually. For the first few days, the limb may be left rather shorter than natural, and then it may be gradually lengthened by merely tightening the screw, with-

out (as is necessary in Dessault's or Liston's splints) deranging or removing any other part of the apparatus. 5th. The entire limb is exposed to view, and should the fracture be compound, the tails may be removed without raising the limb, or diminishing the extension, and any shortening or deformity is immediately detected, which is not the case where the limb is surrounded by two or more splints, retained by bandages. 6th. As the extension is applied in a direct line, eversion of the foot is entirely prevented. 7th. The extension may be made above the malleoli, so as not to interfere with either the dorsum of the foot or the ankle. The traction on the ankle is a well-known evil, and has sometimes given rise to a relaxation of the joint, requiring several weeks for its removal. This mode of making extension is much better than that proposed by Mr. Bulley, in the form of a circular band around the thigh, above the patella; but in fact, after the first few days, the amount of traction is so slight, when used in the proper perpendicular direction as with this apparatus, that no injury can be done to any of the joints. And lastly, the counter-extension is principally made against the unyielding tuber ischii, a part well covered with a cushion of fat, and accustomed to pressure; the perineal plate, resting against the ramus of the pubis, sustains comparatively little pressure, and is of use chiefly in keeping the apparatus from slipping outwards.

On first applying this splint, my patient suffered considerably from the traction on the ankle; but I afterwards found that this arose from using a degree of extension quite unnecessary. In fact, the muscles become partially paralysed by the gradual and slow traction, and after the first few days, the slightest force was sufficient to keep the limb to its normal length.

The splint will be invaluable in military practice, where a firm support under the limb is of so much importance; and in fractures of the condyles of the femur or tibia it will be equally useful; for whilst the extension is fully kept up, the knee-joint



will be exposed to view, and this in a position favourable for the application of leeches or other treatment.

Cases of fracture of the neck of the femur within the capsule, when they occur in very old or debilitated persons, are best treated by Sir Astley Cooper's method, as, no doubt, any attempt to keep such patients for a length of time on their backs by any apparatus, however simple, must be followed by sloughing of the nates, irritative fever, and probably the death of the patient. But when this fracture occurs in younger and less debilitated subjects, I have some reason to hope that the occurrence of false joint will be obviated by the use of this apparatus, as two of the most usual causes of disunion, the too frequent motion, and the want of close contact of the fragments, will be hereby avoided.

That the too free motion will prevent union scarcely requires proof, and that the want of close contact of the fragments will equally prevent it is nearly as evident. Thus in fracture of the patella and of the olecranon, the want of contact alone would seem to prevent bony union, as there is no deficient vascularity of the parts, and bony deposits take place readily when the parts are in contact in longitudinal fracture of the same bones.

The following cases illustrate the use of this apparatus:

Luke Reilley, a healthy carman, aged 31, was admitted into Mercer's Hospital on 30th of August, under Dr. Jameson's care. He could give no accurate account of how the accident under which he laboured occurred, or whether it arose from direct or indirect violence. The thigh, at the upper part, was considerably swollen; he suffered intense pain, especially on any attempt being made to move the limb; the toes were very slightly everted, and there was scarcely any shortening; he could not lift the limb at all, but could invert and evert the foot imperfectly. Dr. Jameson thought he felt an obscure crepitation, but, being prevented from making an accurate examination, owing to the pain felt by the patient and the spasm of the

muscles, he was not perfectly satisfied of the existence of a fracture; stuping was therefore ordered, and an aperient at night.

On the 1st September he came under my care; the symptoms were as on the former day; the bowels had been opened. The same pain and spasm were present. I ordered him to be cupped to twelve ounces, and to take a diaphoretic mixture, with an opiate at night.

On the 2nd he was much relieved by the bleeding, but still there was extreme pain on moving the limb.

On careful measurement the limb was not more than the eighth of an inch shortened; the toes still very slightly everted, and he could not raise the foot from the bed. The pain he suffered was still so intense, that on attempting to discover a crepitation I was obliged to desist. I ordered him to be again cupped, and to be well stuped.

On the 3rd, on visiting him in the morning, I was surprised to find that the limb was at least one inch and an eighth shorter, and that the toes were much more everted. The pain was much relieved by the cupping; and on making extension, a crepitation was felt most distinctly. On making inquiries as to the cause of the shortening, I discovered that, during the temporary absence of the nurse (of course contrary to directions), he had made his way across the ward during the night, to get to the night-chair, having a great antipathy to the use of the bed-pan. At first he tried to place the foot on the ground, but finding that this was impossible he was supported by two of the other patients, and hopped across the room. On getting into the bed afterwards he felt severe pain in the hip.

On the 5th instant I applied the splint: the extension was at first made on the instep by a figure of 8 bandage. He complained of considerable pain across the dorsum of the foot at night, although there was little or none during the day, and the screw was loosened during the night; but he never for a moment suffered any pain or galling in the groin or perineum.



The many-tailed bandage was applied along the entire limb to diminish the pain and help to remove the swelling. The limb was of its full length, and not the slightest tendency to eversion could be perceived.

On the 10th, finding that the instep still gave him uneasiness, having *first put a roller round the foot to prevent œdema*, I applied a circular bandage above the malleoli, and to this I attached side-pieces, which firmly connected it to the foot-piece of the splint, and then tightened the screw.

On the following morning I found that he still complained of pain above the instep, which was immediately relieved by relaxing the screw a good deal, and I now discovered that we had been using an unnecessary degree of extension, for even with the relaxed state of the screw, the limb retained its perfect length. From this day he made no complaint of the instrument, except occasionally, when the pillows under the limb required to be replaced, or when the pad which filled the hollow between the heel and the calf of the leg was displaced, and allowed the heel to rest too much on the pillow.

On the 15th all swelling having subsided, I removed the bandage as being no longer necessary.

On the 30th September I examined the limb, and found that he could slightly raise it from the pillow; it had its full length, and there was not the least rotation. The slightest possible extension was continued, which gave him no uneasiness. It would be quite unnecessary to dwell further on the progress of this case; he left the hospital with a most perfect limb on the 14th of October.

James Gill, aged eight years, a fine, healthy boy, residing in Sandford, whilst playing with some boys, was thrown down, but could not accurately say how he fell. Being unable to rise, he was carried home, and from thence brought into Dublin, to Mercer's Hospital. On examination, the left femur was found to be dislocated into the ischiatic notch; it was rotated inwards,

and the great toe rested on that of the opposite side; the thigh was slightly flexed, so that the amount of shortening could not be accurately ascertained. The limb was nearly fixed, admitting only of slight flexion and adduction, but not permitting either extension or abduction. The head of the bone could be felt very indistinctly in the sciatic notch, the buttock was flattened, and its fold nearly obliterated. Extension was made obliquely, in the usual direction, for a few minutes, and the bone went into the acetabulum with a snap, and very little difficulty. He was placed in bed, with the knees tied together, and pillows under the hams. For a few days he complained only of slight pain and soreness, which, being attributed to inflammation consequent on the accident, were treated by the application of a few leeches and stuping. On removing the pillows, however, it was found that the limb was slightly rotated inwards, and a little shorter; that it could neither be abducted nor rotated outwards; in fact, although the symptoms were not so well marked as before, it was apparent that the head of the femur had again slipped from the acetabulum. On making very moderate extension it was reduced, and the knees were carefully bandaged, but on the following day it was found to have again escaped from its position. On making extension, it was now also easily replaced, but it immediately slipped out and generally with a jerk, which proved that its displacement did not arise from a fracture of the brim of the acetabulum. Liston's splint was then applied to the limb, with the hope of keeping it *in situ*, but with no better result, and after several ineffectual attempts it was finally discontinued, in consequence of the perineal bandage having excoriated the inner surface of the fold of the thigh, although it had been carefully padded, and applied with the greatest attention. Not having a splint of the proper size for a child, and not wishing to leave the bone longer unreduced, on the 2nd of December I applied the apparatus made for an adult, although I feared that the large size of the perineal plate would interfere with the urethra, by extending too



far over the medial line of the perineum. This, however, did not take place, and the child did not complain unless when pressure was made behind the trochanter, or when the limb was moved for the sake of ascertaining whether it had retained its normal position or not. The excoriations healed rapidly, and the head of the bone has not even once slipped from the acetabulum since the application of the apparatus.

This case, sufficiently interesting in itself, speaks much in favour of the splint, as the small size of the perineum, when compared with the large size of an instrument intended for an adult, the previous excoriation caused by the former apparatus, the early age of the child, and the facility with which the bone slipped from the acetabulum on the slightest motion, all rendered it peculiarly difficult of management.

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ART. II.—*On the Use of Galvanism in Obstetric Practice.* By JOHN HYDE HOUGHTON, M. R. C. S. L., one of the Surgeons to the Dispensary, Dudley.

IN the present state of our knowledge on the subject, it is a matter of deep interest and of considerable importance to determine the power which galvanism possesses of exciting or increasing the action of the uterus, and of arresting hemorrhage from that organ during pregnancy or labour. Few, as yet, have recorded their experience on this point, and our knowledge of the subject is meagre and unsatisfactory. Those who have published their cases (with one exception, Dr. Simpson) speak in unvarying terms as to its powers, and would lead us to look to it with confidence in some of the most trying difficulties to which we are exposed in obstetric practice.

Dr. Simpson, on the contrary, seems altogether to doubt its powers, and after having recorded eight cases, the results of which are given below, he proceeds to say: "It would be hasty, and logically incorrect, to deduce from the preceding experiments

that under no modification and under no manner of application does galvanism possess the power of directly exciting or increasing the contractile action of the uterus. Forms and methods of employing it may possibly be detected or devised, affording a different result. But I believe I am justified in inferring from the preceding inquiry that, as employed at the present time, and in its present mode, it is not a means which can in any degree be relied upon for the purpose in question, and is so far practically and entirely useless as a stimulant of the parturient action of the uterus.

“In stating the above conclusions as the result of my own experience, I by no means wish to impugn the validity of the observations made in one or two isolated cases by others in which an opposite result was supposed to be produced. Uterine contractions may certainly have been occasionally increased *while* the galvanism was being used; but I strongly question whether that increase was the result of galvanic agency.” Farther on he observes: “Uterine action may be modified by the state of the patient’s mind, or by other more unappreciable conditions, by the application of cold or mere mechanical irritation of the vagina or cervix uteri.” “The use of *so portentous an apparatus* as the galvanic machine may influence the uterus through the mind of the patient.” “The application to the skin of a wet sponge attached to the external conducting wire may excite uterine contraction by reflex action, on the same principle as cold thus used very generally leads to this effect both during and after labour; and lastly and principally, the mere introduction and mechanical irritation of the vaginal conductor upon the surface of the vagina and cervix uteri will, I doubt not, occasionally excite more strong and powerful uterine pains, in the same way and on the same principle as the mechanical irritation of the finger or the forceps certainly sometimes produces the same consequences.”

Dr. Radford, of Manchester, holds a very opposite opinion



to that just expressed, speaking highly and positively of its powers over the action of the uterus; and in this view he is supported by most of those who have recorded their experience on the subject. Referring to a case of hemorrhage at the eighth month, he says: "the circle was now completed, and the woman complained that I was cutting her. The moment the circle was completed, uterine pains were excited, and a bearing-down effect produced; the effect was observed to be more or less intense according to the length of time the conductors were allowed to remain applied." "The uterus was felt to be *tonically contracted during the intervals*, and this effect was increased after each temporary action induced by the application of the connecting-rod." And again he observes: "It is in such cases as these that we may with *such certainty of success* bring into use that powerful agent, galvanism."

Having these two deservedly trustworthy authorities so completely at variance on a subject of such importance, it seems to me to be the duty of every one to contribute his mite to our common stock of knowledge, that, from an aggregate of carefully recorded observations, some positive conclusions may be deduced. It is in this spirit, and in the hope of calling attention to an agent which is little used in midwifery, but which, I firmly believe, possesses vast powers as an exciter of uterine contraction, that the following cases and observations are offered.

CASE I.—Mrs. M. aged 28, a small, delicate, anemic-looking person, is now, July 13, 1847, at the full term of her eighth pregnancy. I saw her at 7, A. M.; she has had premonitory pains for a day or two, but they are now regular and tolerably strong every three or four minutes; the os uteri is three-fourths dilated; membranes entire, soft parts lax and well lubricated; head just descending through the brim. Pain continued regular, with little progress, until eight o'clock, when I ruptured the membranes. The pains then gradually diminished in force and frequency, and at a quarter-past eight had quite left her. Three doses of

ergot of rye<sup>a</sup>, stimulants, bandage, and frictions failed to produce the slightest pains; the head had descended into the hollow of the pelvis. I waited until half-past eleven o'clock, when she became very anxious about herself, and begged I would, if possible, hasten the delivery. I therefore sent for the galvanic apparatus<sup>b</sup>, and at twelve o'clock commenced its administration by applying a very feeble current; one pole being placed in the vagina, the other on the abdominal wall; she immediately cried out "Oh! you are running a pin into me." After three or four minutes she had a very slight pain, and after three or four minutes more one stronger; the pains continued increasing in force and frequency for about twenty minutes, when she was delivered of a small, but healthy child.

The pains produced by the galvanism exactly resembled those of natural labour; and, but for the presence of the apparatus, one would have said she was completing her labour in a natural and favourable manner. The poles were *kept constantly applied*. The uterus soon contracted firmly, and expelled the placenta. The mother and child did quite well.

Previously to her present pregnancy, Mrs. M. had several abortions from ulceration of the cervix uteri, which had yielded to the usual treatment. From this time she enjoyed better health than she had done for years. She got stout, lost her anemic look, and remained quite free from uterine symptoms, which had long troubled her.

CASE II.—On the 2nd of July, 1848, at 4, A.M., she was again in labour at her full time. I was prevented from attending her myself; and she was attended by Mr. W. W. Tinsley, now of the Sheffield General Infirmary, whom I acquainted with the facts of her previous labour. The following is that gentleman's ac-

<sup>a</sup> The ergot was administered thus: one drachm of the powder was boiled for five minutes in half a pint of water, and one-third part of the decoction given every quarter of an hour.

<sup>b</sup> In the cases recorded I used one of Horne and Thornethwaite's electro-magnetic machines, in which the contact was broken by the vibrating-bar.



count of the labour, slightly condensed: "She had been in pain all night, and the pains now came on every five minutes, not strong, and sometimes not quite so often. The membranes were ruptured before I saw her; soft parts relaxed, cool, and moist; os uteri high up, soft, and dilatable, but little dilated; head presenting in the first cranial position. In an hour, little progress being made in the dilatation or descent of the head, I gave her a dose of ergot of rye, which only produced vomiting; in another hour she seemed much the same; and with my hand on the abdomen I could feel that the uterus did not contract with the pains, which continued gradually decreasing, although they never left her entirely. The bandage, friction, &c., were now tried without effect. This state continuing, as I knew that galvanism had been used with effect before, it was again applied. An assistant placed one pole over the fundus on the abdominal wall, and I applied the other at the outlet of the vagina, at the same time watching the progress of the head. At first we could not regulate the power, but at length we got a *continuous stream*, which was gradually increased as far as she could bear, for that only seemed sufficient to produce contraction. In less than ten minutes she complained of the pains getting stronger, and indeed the effect was obvious, for the pains soon became expulsive; the head began to advance, and in about a quarter of an hour made its appearance at the outlet. The poles were now removed, and a natural pain was sufficient to expel the head, and soon afterwards the body. The placenta came away in a few minutes, and the uterus contracted firmly. Her convalescence was quite favourable. During the progress I sometimes moved the pole from the vagina to the sacrum, but the effect seemed to be the same. The chief pain was caused by the pole over the fundus. The galvanism did not seem to produce natural alternating pains, but rather one gradually increasing contraction, which hardly left her until the child was born. The time which elapsed

from the first application of the poles until the birth of the child did not exceed one quarter of an hour."

CASE III. —Mrs. I. was taken in labour September 5, 1847. I saw her at half-past nine, P. M., when I found the os uteri dilated to the size of half-a-crown, soft and dilatable; head presenting naturally; pains regular, but feeble; the pains continued frequent and feeble until half-past one, at which time the child was born. As the head was passing the outlet a copious gush of blood took place, and blood continued to flow *violently* after the birth of the child. I at once removed the placenta without difficulty; the flooding, however, continued; pressure with the hand caused the uterus to contract, by which the bleeding was *restrained*; a slight drain still continued; at times the uterus relaxed under the hand, when the bleeding immediately returned. Shortly an alarming gush took place, followed by pallor, restlessness, vomiting, and fainting; ordinary means had been already tried, and now cold water was *dashed* freely on the abdomen, without producing any permanent effect. The uterus *would not contract effectually*, and the bleeding continued. I now sent for the galvanic apparatus, and during three-quarters of an hour which elapsed until its arrival, I kept firm pressure on the uterus with my own hands, by which means the flooding was restrained. The organ, however, showed a *constant disposition to relax*, and consequently *the bleeding to return*. The state of the patient had become very alarming; the poles were applied without delay; and they soon produced *firm and permanent contraction, and complete suppression of the bleeding*. For a short time I kept my own hand firmly on the uterus, that no unobserved relaxation and internal flooding might occur. Shortly afterwards I desired an assistant (who had much midwifery experience) to feel if the contraction continued; the moment he placed his hand on the abdomen, he looked quite astonished, and said he had never felt so firm a uterus. Her recovery was gradual, and without accident or



drawback, more than that which resulted from loss of blood. I have since attended her in an easy and natural labour, in which there was no accident or complication.

CASE IV.—Mrs. Williams, aged 31, May 8, 1851. *Primipara*. A small, delicate, pale, and apathetic-looking woman; has suffered much from acidity and stomach derangements during her pregnancy. Pain commenced this morning at two o'clock; I saw her at nine o'clock, when I found the pains slight, but recurring every quarter of an hour; os fully dilated; natural presentation; membranes protruding slightly under each pain; external parts moist and dilatable. She continued without much change until noon, when I ruptured the membranes and gave her two doses of ergot. This slightly increased the force and frequency of the pains for a time, but the effect was transient and soon passed off. The bandage, friction, pressure, &c., were tried without effect. At 2, P. M., she seemed weary and tired, and in the hope that after rest the pains might return, I gave her two scruples of laudanum, which produced some sleep, but no increase of pain followed. At half-past six she remained in much the same state; the head low down, the pain slight and infrequent. With the assistance of Mr. J. P. Badley, galvanism was resorted to, but it was half-past eight o'clock before the apparatus was quite ready, the patient remaining during the interval in much the same state. The lowest possible power was used; one pole placed over the fundus, and the other over the sacrum. The application increased the force and frequency of the pains, but it did not induce those strong expulsive pains which it had done in my hands in the former cases. For some time the poles were continuously employed, but as the effect was not so decided as I wished, I subsequently applied them at intervals, and placed one of them *in the vagina*, and at the same time slightly increased the power of the current. The effects now became more marked, and by these means a *regular succession* of tolerably good, *but not very strong pains*, were produced at pleasure,

and delivery was accomplished at 10, P.M. The child was still-born.

The effect of the galvanism in this case was less marked than in the other cases in which I had used it; still it was unequivocal, as the pains were so far under its control that they were induced at pleasure by it, and although the termination of the labour was not so speedily effected as I had hoped and expected, still I have not any doubt that it was much hastened by the means employed.

I shall add a resumé of all the cases I can find in which galvanism has been used in midwifery practice.

MR. DORRINGTON.—1. Internal hemorrhage during labour; the pains had subsided; *os very rigid*, size of half-a-crown; uterus quite lax; there were all the symptoms of exhaustion from flooding present. Laudanum was given; the bandage applied; and then half a drachm of *Secale cornutum* administered. This produced pains; the head bore down on the *os*, but between the pains the uterus was very lax. Galvanism was applied. In a short time “*tonic contractions of the uterus had been called into play.*” It was resumed, and “*strong contractions took place at once.*” After using it for twenty minutes it was finally left off. “So firm a state of tonic contraction having been induced, that we considered it safe to leave the woman” ordinary nourishment, &c. &c. The flooding ceased; pains soon commenced, and labour was completed in four hours afterwards. The following day she was going on well, but died of an “obscure peritoneal affection” some days after.

2. A. B.; ninth pregnancy; full time. A copious gush of blood took place at 12, P.M. Mr. Dorrington saw her at 2, A.M.; she was faint; pulse feeble; no hemorrhage or labour pains; the uterus was lax. “*The firmest tonic contractions were induced the moment galvanism was applied.*” No more flooding occurred.

3. Placenta prævia; flooding without obvious cause between seventh and eighth month. She was seen at the eighth



month; slight flooding going on; os the size of a penny-piece; membranes entire; slight pains. The membranes were ruptured, and the galvanism applied; "*good strong uterine action set in at once.*" The hemorrhage was very slight, and did not return; the child was born in three hours after. The use of galvanism had to be resumed, as the pains subsided a little.

4. A case of twins, at seventh month; first child born; no pains for an hour after; they then commenced very slightly; in four hours they were very slight, and recurred only every half-hour. Galvanism was used, "*the effect was immediate, strong labour pains coming on, and continuing while the current was complete.*" The child was born in a quarter of an hour.

5. Induction of premature labour at eighth month. "The uterus hardened under the application, and she felt labour pain, but this lasted only while the shock was continued."

MR. CLARKE.—Two cases of uterine inaction, in which galvanism was used with success and safety to both mother and child. (Mentioned in the Dublin Hospital Gazette, March 1, 1845.)

MR. CLEVELAND.—Atony in previous labours; pains commenced on Sunday, and continued until Wednesday evening, when they abated, but did not cease. Ergot, &c., failed to produce pain; symptoms of exhaustion then set in. Electro-galvanism was applied. "*A very decided effect was soon produced.*" "*Regular, strong, and frequent pains came on; and in a quarter of an hour a living child and the placenta were expelled, with the least degree of hemorrhage I ever witnessed. Immediate and firm contraction of the uterus followed.*"

The following cases, by Mr. Demsey, I have extracted from Dr. Golding Bird's lectures:—

1. Hemorrhage after the birth of child in a natural labour. Ergot, cold, friction, introducing the hand, and extracting placenta, failed to produce action. After five minutes' application of galvanism, "*energetic contractions ensued, emptying the uterus. In a minute or two the uterus was felt firmly contracted,*" and all "*danger at an end.*" "The patient quickly recovered."

2. Profuse flooding with each pain for six hours; patient much exhausted; cessation of pains for three-quarters of an hour. No foetal pulsation could be heard; os size of crown-piece, soft, dilatable; placenta presenting, and beyond this the head; application of poles seven minutes, *when pains commenced; application suspended ten minutes; no indication of pain. Repeated applications and suspensions—first for ten minutes and then for five minutes—for forty-five minutes, when the child was born.* Renewal of application was necessary for the expulsion of the placenta.

3. Almost identical with last.

4, 5, 6, 7. Galvanism, for post-placental hemorrhage; "*the loss ceased almost immediately on passing a current through the uterus.*"

8. Lingering labour, from atony; labour protracted nearly thirty hours; pelvis capacious, well formed; pains extremely feeble, and at long intervals; fainting at short intervals; no pains for nearly three hours; os dilated; foetal heart heard. On first application, *slight pains*; repeated after an interval of five minutes, *pains decided and energetic*; galvanism applied every five minutes; child born in forty-five minutes. Ergot, &c., had been previously used in vain.

9. Hemorrhage in miscarriage, without uterine action. Pregnancy at the third month; flooding (from fright) of three days' duration; os rigid and unyielding; no pains at all; a portion of placenta felt protruding; constant drain going on; acetate of lead, ice, and cold lotions, ineffectual after seven hours' trial; four doses of gallic acid then produced no effect; ergot every twenty minutes without benefit. Galvanism was now used; no effect for twenty-eight minutes, the contractions *then became quick and forcible, and the ovum was expelled in sixty-eight minutes.* Convalescence was speedy.

10. Induction of premature labour at the seventh month; puncture of membranes; no pains in forty-eight hours. Galvanism was then used *thus*: five minutes' application, and ten



minutes' interval; after the third application, slight, transient, grinding pains came on. Suspension for half-an-hour; cessation of the pains; application resumed every ten minutes for forty minutes; pains became strong and regular; it was now discontinued, but the pains gradually increased, and expelled the head.

DR. RADFORD.—1. Hemorrhage at eighth month. Uterus flaccid and inactive. Rupturing the membranes, and other ordinary means, failed to produce action. “*From the moment the circle was completed, uterine pain was excited, and a bearing down effort was produced.*” Tonic contraction took place; the flooding was arrested, and did not recur, and the labour was completed favourably.

2. A fourth labour: after full dilatation and rupture of the membranes the pains ceased; constant discharge of blood for six hours; the uterus could be felt flaccid through the abdominal parietes. Galvanism was now tried; a slight power was at first used, and gradually increased; the poles were applied on various parts of the abdomen. The beneficial influence of the agent was soon apparent; the *atonic state of the uterus was soon changed; the parietes became firmer; pains, at first grinding and slight, became powerfully expulsive*, and the child was born one hour after the commencement of the operation. *The uterus contracted firmly; the discharge of blood ceased as soon as the uterus began to contract, and there was no further flooding.*

Dr. Radford observes: “The powerful and sanitary influence of galvanism was most decidedly obtained in this case, and the great advantage of this agent is, that its effects may be carried to any degree, from at first only exciting the uterus so to contract that its diameter may be diminished and that its tissues come to be applied to the surface of the child. This, however, may be so increased as to effect the expulsion of child and placenta.”

DR. SIMPSON'S eight cases are recorded with unusual ac

curacy, and, apparently, every care was taken to avoid any erroneous or fallacious result being produced; and, in order to insure this, he noted first the duration of the pain, and then the duration of the interval,—

1st. Before the application of the wires.

2nd. After the application of the wires, but before the circle was complete.

3rd. Whilst the wires were applied, and the circle complete.

4th. After the removal of the wires.

He thus, it seems, took the best means to estimate accurately the extent to which uterine action was excited, and to avoid a fallacy which might be caused by the influence of emotion, &c.

I shall not enumerate Dr. Simpson's cases at length, as I have done those previously recorded, because I have a *resumé* of them in his own words, in which, of course, the results are truly stated; and as my business is with the results simply, there is not any necessity for my giving them in detail. The others were so given that I might use as much as possible the words of the authors, and thus insure accuracy.

“In one instance the pains were more frequent in their recurrence, but shorter in their duration, during the application of galvanism. In five other cases, the employment of galvanism neither increased the average frequency of the pains nor their average duration. In one case the pains ceased while the galvanism was applied, and returned upon its removal; in the instance which I have last detailed the uterine action ceased while the galvanism was applied, and did not return upon the withdrawal of the galvanic action, nor for twenty-four hours subsequently. There was no reason whatever at the time to expect this as a probable occurrence, independently of the galvanism. But even admitting, for the sake of argument, that the cessation of the uterine action was not the result of the galvanic influence used, still the fact is amply sufficient to show



that the galvanic current had not, at least, the power either of increasing the pains, or of continuing or maintaining them when they offered to fail. It may be proper to add, that during the galvanic action I did not find (in any of the experiments) between the *clonic* uterine contractions or pains, any evidence whatever of unusual *tonic* contractions of the uterus, as shown either by any degree of hardness on the general uterine tumour, or by any degree of tension in the pressure of the bag of membranes, or the child's head, against the cervix uteri."

Thus the results of the foregoing thirty-two cases, in which galvanism has been used in obstetric practice, have been cited, and it appears that its effects were—

Decided in 24 cases.

Equivocal in 1 „

Negative in 7 „

So that in 75 per cent. the effects of the agent were clearly manifest:—In eight cases, for hemorrhage before expulsion of the ovum; in six cases for hemorrhage after expulsion of the ovum; in eight cases, for atony of the uterus; and in two, for induction of premature labour.

The cases recorded have occurred in the practice of eight observers. Of these, seven bear unvarying testimony to its powers, whilst one altogether doubts it. Indeed, all the cases in which the results were equivocal or nugatory were observed by him; and he has not observed a single case in which the result was satisfactory.

Hence, the facts seem to be in such strange contrast that one is almost forced to the conclusion that in Dr. Simpson's cases some undetected source of fallacy must have existed; and Dr. Golding Bird seems to entertain a somewhat similar opinion, for in his Lectures on Galvanism he says: "I cannot for one moment admit the validity of his (Dr. Simpson's) opinion when opposed to the facts of Dr. Radford, Dr. Lever, and others; but would endeavour to show the mode in which these

opposite statements appear to admit of reconciliation. This is founded on the opposite effects of currents, according as they follow the course of the centripetal or centrifugal nerves. Now in the magneto-electric coil, in which currents are excited by repeatedly breaking contact by a vibrating bar, we have two currents moving in opposite directions, to each of which the patient who is subject to the experiment becomes submitted. Now, these currents are of unequal strength, and if the most energetic, that on breaking contact, be passed in the direction of the *vis nervosa*, it will produce painful contractions, which, the moment it passes in the opposite direction, will become relaxed; for a direct current tends to produce contraction, an inverse current, paralysis. Hence, I should urge the accoucheur not to employ the apparatus in which both these currents are produced, but simply the *single current* machine. In using this I would suggest the positive conductor to be placed over the lumbo-sacral region, and the other to be carried over the abdominal surface with a gentle friction. In this way powerful uterine contractions may be easily excited"<sup>a</sup>.

I am not sufficiently master of the subject to offer any opinion as to the theoretical truth of this explanation; but, as referring to the case in question, it must fail as an explanation of the want of success in Dr. Simpson's cases, for Dr. Simpson says that "he used an instrument similar to the one used by Dr. Radford, and made by the same makers." Hence it ought to have produced the same sort of currents, whatever they were, and the same results.

Dr. Tyler Smith has suggested that the emotional excitement produced by the application of galvanism may be the cause of the failure in some instances. He says: "The application of the remedy, and the painful sensations it excites, disturb the emotions considerably. In some cases the emotional excitement increases the influence of the galvanism; in others

<sup>a</sup> Page 144.



it weakens or suspends them altogether." It is, I think, hardly possible to over-rate the importance of regulating the emotions as much as possible during labour, and to obtain this end it is necessary that the attendant should exercise the most perfect control over *his own emotions and conduct generally*, whilst in attendance on his patient. Still, we can hardly comprehend how the emotions should have acted "pro" in the twenty-four cases of different practitioners, and "con" in eight of Dr. Simpson's. Thus, Dr. T. Smith's explanation seems to me to fail also; and we are, as I before observed, forced to the conclusion that some unexplained source of fallacy existed in the eight cases alluded to; what this may be I shall not attempt to explain, but I feel certain that those who have witnessed the power of galvanism will never for one moment doubt its efficacy, although there may be exceptional cases in which it will fail.

It can hardly be necessary to insist upon the "*power of emotion*" after the exposition of Dr. Tyler Smith; but I will give two illustrations which happened to me some years since, before his views were made known.

I was engaged to attend a patient in her first labour. She was young; an only child and a "belle"—in fact, a spoiled child. When I saw her, she was in the most favourable position for a speedy and safe delivery, and I told her that she would probably be delivered in the course of an hour; the pains continued quick and regular, and the progress was favourable, when I thought it necessary to confine her to her bed. To this she objected (in a temper) and refused to submit to my wish. I thought it necessary to be positive, and an altercation took place. The pains *entirely left her* for some time; and I left her room. There was not any pain for two hours, when her mother came and told me that my patient wished to see me. She immediately apologized for her conduct, and, on my assuring her that I had forgiven her, and resuming my friendly conduct towards her, she lay down. The pains almost immediately returned, and she was speedily safely delivered.

Another patient had requested me to attend her in her fourth labour. She was particularly desirous that I should attend her *myself*. When she sent for me, I was at some distance in the country, and my assistant visited her. The pains had been very frequent and strong. He found the os fully dilated, the membranes ruptured, and the head pressing on the perineum. The moment she saw him (although she knew him) the pains abated, and soon entirely left her. When I returned, about three hours after, I found that not the slightest pain had recurred since he came in, although he had tried all the usual remedies, including ergot. I then sent him for the galvanic apparatus, but in less than five minutes after he left the room the pains returned; and without its application being necessary, she was immediately delivered.

Admitting that galvanism failed in eight cases to produce uterine action, and assuming, which I believe we are justified in doing, that in twenty-four cases it succeeded, we find that in 75 per cent. of the cases adduced its effect *was manifest and decided*.

Dr. Golding Bird, in his lectures already referred to, observes: "The result which I have arrived is, that this agent, like the ergot of rye, and perhaps other *ecbolic* remedies, generally fails to *develop* uterine action *de novo*, but that, having once been excited, they are always and almost invariably rendered more energetic, and even when they have ceased for a while, they are readily again actively set up by the application of the current. Hence, though I believe it will generally fail to induce premature labour, it will *as* generally succeed in stimulating the uterus to vigorous contractions after labour has actually commenced"<sup>a</sup>.

Dr. Tyler Smith also believes that "*the uterus can be made to contract by this agency when it will obey no other stimulus*"<sup>b</sup>. Dr. Ramsbotham and Dr. Lever also have borne testimony to

<sup>a</sup> Page 147.

<sup>b</sup> Principles of Obstetric Medicine, p. 367.



its power of acting on the uterus; and when we add to their names the names of those who have been already quoted, the weight of authority is also strongly in its favour.

Hence, I think that I have shown that in galvanism we have a most important addition to our obstetric appliances, and one to which we may, with the greatest confidence, resort in cases of flooding, either before or after delivery, and also in cases of atony of the uterus. Its most important power being that of controlling hemorrhage, in doing which it seems not only to act as an exciter of the uterus, but as a powerful general stimulant, thus at once carrying out the most important indications of treatment. If this be true, as I have no doubt, little argument will be required to enforce its use. He who has watched a case of dangerous flooding,—who has seen the life's blood of his patient gushing forth,—the symptoms of exhaustion becoming imminent, and all his means of relief tried in vain, will but too gladly *grasp* at any remedy which, even in a small proportion of cases, can afford relief, much more will he gladly avail himself of one which will avail him in the majority of cases.

The results of its application in cases of simple atony of the uterus are not so important as in cases of flooding. Many of these cases may safely be left to nature when, after a tedious and protracted labour, the patient may be safely delivered, and do well. In some of these cases, however, symptoms of exhaustion come on, and delivery is imperatively called for; and in other cases the anxiety of the patient and her friends may make us wish to hasten the delivery, perhaps, in some degree, against our own better judgment. Hitherto, the forceps have been resorted to in these cases, but if, as Dr. Blundell says, “instruments are always a great obstetric evil” (an opinion to which I heartily subscribe), any means which will enable us to supersede their use must be regarded as a “great obstetric good.” Galvanism must then, I think, be looked upon as an important agent for the relief of simple

atony of the uterus; and indeed, a striking illustration may be given of the advantages that may be expected to accrue from its use by referring to the report of the Vienna Lying-in Hospital, by Dr. Arneth, which was reviewed lately in this Journal. From it we find that in 6527 cases, the forceps were used forty-five times, and in twenty-eight of these for simple atony of the uterus. Now, if galvanism had been used in these twenty-eight cases, and had succeeded in the proportions I have indicated (*viz.*, three in four), twenty-one cases would have to be deducted from the forty-five forceps cases; and, hence, the cases of instrumental interference in 6527 would be twenty-seven, instead of forty-five, or more than one-half less. I do not think it necessary to insist further upon the value of an agent which can thus reduce the proportion of cases of instrumental delivery. If it had no other advantage than that of saving the time of the attendant it would be a great boon, for who can over-rate the annoyance of a case of uterine inaction in which every adjuvant to a speedy and safe delivery “*but pain*” is present:—of a well-formed pelvis, a well-dilated os, a well-lubricated vagina, *a quarter of a pain every half-hour*,—and all our ordinary stock of excitors, centric and excentric, exhausted? We can hardly be too thankful for an agent which will befriend us in such a strait. I would not, however, have it understood that I wish to advocate much interference with the process of labour; on the contrary, I would reiterate the warning of Dr. Blundell, “*meddlesome midwifery is bad*,” and when things are going on pretty well I would be content, and wait; but in cases such as I have indicated, it is our duty to interfere, and to take care that we interfere in that way which shall be least liable to injure our patient. In these cases I believe that galvanism will yet be found to be of the greatest service, shortening and relieving the sufferings of our patients, without causing any danger.

Ergot of rye has long been deservedly regarded as the most potent exciter of the uterus. Its virtues are too well known to



admit of doubt, or to require any eulogy. Every obstetrician must be fully conscious of them. I am not, however, aware of any statistics by which I can form an idea of the proportion of those cases in which it succeeds to those in which it fails to produce action of the uterus. For myself, I am disposed to give it with caution; hence, my experience of it is not so great as that of many others who do not attend more midwifery cases than I do. For some time past I have kept a careful register of every labour I have attended; numbering in all 330 cases. From this return, I find that the ergot has been administered in thirty-eight cases, and its effects were decided in twenty-six cases; equivocal in six; *nil* in seven.

This result of the effects produced by the administration of ergot, will, I feel sure, startle many who are accustomed to use it, and not record the result of its action. I was, indeed, much surprised myself at the numbers, as I had a strong impression that it acted *decidedly* in a far greater proportion of cases. However, my record was kept as a mere statement of facts, and as I had no preconceived view to support, it may, therefore, as far as it goes, be relied upon. So that the cases in which the effect was equivocal or *nil* were just one-third, or 33 per cent.

Of course I do not offer this as an authentic inference as to its powers (the numbers being much too small to justify me in doing so), but as the best approximation within my reach, and if I may be allowed to offer it *as* an approximation to the truth, and then to compare its effects with the effects of galvanism, we shall find that it succeeded in two-thirds, whilst galvanism succeeded in three-fourths of the cases; and hence we may claim for galvanism the first place on the list of excitors of the uterus,—a result I was not at all prepared for when I commenced this investigation.

I have yet to consider the objections to the use of galvanism in obstetric practice, and these appear to me to be very few. The dangers of flooding are so great, that I should be disposed to

employ it in almost any case where ordinary means had failed to arrest speedily the bleeding; otherwise I should be careful in applying it in cases where there was much rigidity, or want of capacity in the passages; for I am so convinced of its power to produce the strongest contractions, that I should fear laceration or contusion of the soft parts, or some other serious mischief. It is true, that its powers are said to be under control, and so I believe they very much are; but until this point shall be more fully proved, I think we should use every precaution, as its injudicious application might seriously prejudice its use. If experience should prove that its action may be so controlled, its value will be very much enhanced.

I do not think the pain it is said to occasion would form any valid objection to its use; indeed, in my hands the pain, independent of that caused by the contractions of the uterus, has not appeared to be severe; and if it were, when we consider the dangers it is intended to meet, I do not think that *that* should weigh in our decision. If, however, in any exceptional case, the pains should be so severe as to make us unwilling to continue the use of galvanism, *that* might now be easily obviated by the employment of chloroform.

The mode of application requires a moment's consideration. Should the poles be continuously applied, or should they be applied at intervals so as to imitate the periodicity of the pains? I am myself at present disposed to apply a continuous current until the pains become strong. I would then suspend the action altogether, and watch the effects; for I believe that in many cases the uterus will continue to act, when once *set going*<sup>a</sup>. If the pains should afterwards become weak and in-

<sup>a</sup> In the Medical Gazette for March, 1849, Mr. James, of Exeter, published a paper on the "air tractor," in which he remarks, that when the uterus ceases to act from exhaustion or over-exertion, it will resume its efforts if slight assistance be given to it. He says: "We continually see cases where the uterus seems, after great efforts, to have abandoned, as if in despair, any further attempt to expel its contents; if we employ the forceps or crotchet, and the uterus feels that its efforts *will* be assisted,



efficient, I would apply interrupted currents; this, however, is yet a matter for experiment and observation.

From the preceding inquiry, I think I am justified in inferring that in galvanism we have a *new, safe, and powerful* agent for exciting the contractile powers of the uterus, to which we may with confidence resort in all cases where delay or danger may arise from want of action in the uterus,—one that speedily excites the tonic and clonic contractions of that organ, and thus become a powerful means of arresting hemorrhage both before and after delivery or the expulsion of a premature ovum; and one, also, that in cases of uterine inaction, where exhaustion threatens, will expedite labour, and so obviate the necessity of instrumental interference. I think we may also further infer that this action is not the result of emotion or reflex action, but that it is *a true and positive result of the application of the galvanic current.*

The great obstacle to its general use consists, I think, in the want of a convenient apparatus. The formidable appearance of the machine; the trouble of carrying it about; the necessity of an assistant, and other minor objections, will prevent our using it in many cases where, I feel sure, it might be often applied with benefit to the patient and her attendant; but in those graver cases to which it seems so peculiarly adapted, these trifling obstacles will not be considered<sup>a</sup>. A

they will be renewed. *I do not believe that it is from the stimulus of the instrument, for the uterus rarely begins to act till we begin to pull.* It is just like a willing horse with an overload, who will struggle till he finds further effort unavailing, but if the driver puts his shoulder to the wheel, he will again try his best.”

This paper made a strong impression on my mind, and I have repeatedly tested the truth of the position laid down, and it was a knowledge of this truth, together with what I have observed when using galvanism, that made me think that violent action might be produced, which could not be allayed, and that hence danger might arise where *physical obstruction* to delivery existed. Hence the caution I have suggested.

<sup>a</sup> I have just had my attention called to Pulvermacher’s “hydro-electric chain batteries.” One of these, “capable of producing all the effects of a powerful voltaic pile of 120 combinations, occupies the space of an ordinary sized pocket-book.” (See

small portable instrument would certainly be a great acquisition to the accoucheur.

I have thus endeavoured to *recall* the attention of the profession to one of the uses of an agent, which, I think, is little employed, and, I believe, less understood, in obstetric practice,—one, I do not doubt, of vast power, and which will be found to avail us in some of the most trying emergencies of practice, when every other means have failed. If I shall succeed in inducing others to test its powers, and to record their experience of it, my end will be answered. Of the result of an extended inquiry I feel no doubt. It is, however, to those who have the charge of large obstetric hospitals that we must look principally for information; they have the means of speedily carrying out a set of well-devised experiments, and so at once of deciding the question I have here endeavoured imperfectly, I fear, to discuss.

Whilst engaged in copying these observations for the printer, I was called to a case, of which the following is a record:—

September 15, 1851.—Mrs. C., aged 33, at the full period of the fourth pregnancy; head presenting, face to pubis. I saw her at 6, P. M.; the pains were regular, but not strong; os the size of a five-shilling piece, soft and thick; head just above the brim. At 10, P. M. os three parts dilated; membranes entire; head in same position; pains regular, not strong, or very frequent. During an examination, the membranes broke, after which the pains became weaker, and soon entirely ceased; the usual means, including ergot in full doses, and *irritating the vagina and cervix with the finger*, failed to produce pain, and she remained in the same state until 12 at night. At a quarter-past twelve galvanism was applied; the apparatus did not act

(Lancet, August 30, 1851.) If these instruments are found to possess the powers claimed for them, they will soon, I trust, form a part of the obstetric appliances of those much engaged in midwifery practice.



very well for some little time, but in about ten minutes she complained of slight pain. She then complained, for about twenty minutes, of violent pain in the sacrum and thighs; in a few minutes more she had a sharp expulsive pain; this was quickly followed by another, sharper; the current was applied continuously for about fifteen minutes more (in all for forty-five minutes); the pains continued to increase in force and frequency, and had now become strong and expulsive, bringing down the head, which was felt descending through the superior aperture. The current was now broken altogether, and the application finally discontinued. Strong, regular, expulsive pains continued, and in about thirty-five minutes more of sharp labour, a living child was born. The placenta soon followed; the uterus contracted well; and she is now (September 17) in every respect as well as can be.

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ART. III.—*On Traumatic Spasms.* By WM. COLLES, F.R.C.S.I.,  
Surgeon to Steevens' Hospital, &c.

As facts accumulate, and surgeons come to have a more perfect and intimate knowledge of the various forms of disease, many points, which seemed to be obscure and difficult to be accounted for, will become clear and easy of explanation. Much of the previous obscurity will very often be found to have arisen from the fact, that two distinct diseases were not only confounded together, but described and treated as being one and the same, hence leading to great difference of opinion with regard to description, treatment, and results, according as in the practice of individual surgeons one or other form of disease would predominate. That such has been the case with regard to tetanus I have little doubt.

We find different surgeons describing different symptoms as characteristic of tetanus, and recommending various and often opposite plans of treatment; and each asserting that the plan adopted by him was found almost uniformly successful; yet,

when we come to test their views by practice, we too often find that no reliance can be placed in any one of these descriptions, either as regards diagnosis or treatment.

We cannot suppose that all the surgical writers to whom I have here referred intended to mislead the profession, for, the character of some of them is too high to allow us to harbour such a suspicion; and it therefore only remains to conclude that they have been misled themselves, have described as tetanus cases which were not so, and hence recommended a plan of treatment which was found to be ineffectual in the practice of others. I think, then, the first step to clear up the difficulty with regard to this disease is to endeavour to find out what other affections may be and have been confounded with it.

With this view, I propose in the following observations to endeavour to describe some distinct spasmodic affections which I have seen attending on injuries; to show the distinction between them, and the different treatment applicable to each; and as these affections are chiefly found attending on fractures, it is to this class of injuries I will chiefly direct attention. I will speak of them according to the time of their occurrence after the receipt of the injury.

There are, I think, four distinct affections of this kind, which differ in their time of invasion, their progress, and their treatment, and yet have been more or less confounded with tetanus.

The *first* is the least important and least dangerous. It comes on immediately after the receipt of the injury, before any adjustment of the parts has been attempted; on the least motion of the patient, or handling of the parts by the surgeon, the muscles of the limb affected are thrown into a sudden spasmodic action, causing a jerk in the part, and an increased displacement of the fractured ends of the bone. This is attended with severe stings of pain. This sudden momentary spasm ceases and the parts remain quiet, the muscles soft and relaxed and the patient free from pain, until it is again induced by any motion imparted to the limb either by the patient or surgeon. The occurrence of this spasm has



been attributed by some to a sharp spicula of bone irritating the muscles, by others to the want of support or of points of resistance to muscular action. The subject has been fully discussed by the late Dr. Houston, in a valuable paper on Fractures, in the former series of this Journal<sup>a</sup>. I shall therefore only observe on the treatment of it, which is very simple. We have merely to place the limb in such a position as will allow the muscles to be most relaxed, to restore the fractured ends of the bone to their natural position, and to retain them so by firm, but not too tight dressings. A full opiate will assist the local treatment, and this may even at times require to be preceded by the abstraction of a few ounces of blood.

This is never a formidable affection, and seldom continues beyond the second or third day, though up to that time the surgeon must avoid disturbing the parts as much as possible, as the tendency to spasm may still remain, and the least roughness in manipulation may cause a recurrence of spasm, and a renewed displacement of the parts.

Such is the first form of spasm I mean to describe; we should expect that it would be readily known to the surgeon; yet we have evidence that it may be, and has been confounded with another very different form, to which I shall next direct attention.

This, the *second* form, is very different from the preceding, being, perhaps, the most severe and rapidly fatal of all these spasmodic affections. It generally commences about the third or fourth day after the receipt of the injury, at the time we would expect inflammation to be fully and fairly established, and all danger from its excess or irregular action to be passed. At first the patient, while dozing to sleep, is suddenly awakened by a severe jerk in the limb, and a very acute but transient attack of pain, which returns every time he endeavours to compose himself to rest, so that at last he will use every exertion of his mind

<sup>a</sup> Vol. viii. p. 477.

to prevent any tendency to drowsiness, such is his horror and dread of the recurrence of the spasm. This spasm is at first confined to the parts about the injury; the muscular action during it is very violent, almost always causing a displacement in the fracture, which cannot be retained in its position by any application; in fact, any restraint seems only to aggravate the severity and rapidity of the seizures, so that we are compelled to leave off all splints and dressings; and the pain attending it is so sudden and excruciating, that even the strongest-minded patient cannot avoid giving utterance to most agonizing shrieks. When this sudden jerk of muscle and attack of pain have ceased, the parts return to their natural state; the muscles become soft and relaxed; the limb free from pain; and the patient can move, speak, and swallow almost as usual.

The spasms commence, as I have said, in the injured limb; recur at uncertain, irregular, and generally long distant intervals; but as the disease advances, they return more frequently and regularly. At first the injured limb (*e. g.* the leg) only is affected; as the disease advances the spasms attack the muscles of the thigh, extend to the abdomen, to the arm of that side, then gradually to the other side of the body, until at length every voluntary muscle is in violent action during this momentary spasm, distorting the patient's body and the injured limb in a most fearful manner.

As regards the constitutional symptoms, the pulse becomes increased considerably in quickness, but not in force; the temperature of the body is not increased at first; as the disease advances, a perspiration breaks out, and becomes more profuse, cold, and clammy towards the end, when the patient's mind, hitherto collected, begins to wander.

This form of spasm is most rapidly fatal, generally terminating in death, apparently from exhaustion, between the second and the sixth day from its invasion. And it is remarkable, that the severity and rapidity of its course is not connected with the severity of the injury: I have seen it follow a simple



fracture of the fore-arm. During its progress it is, in my experience, quite uncontrollable by medical means.

The largest opiates have no other effect than to stupefy the patient; they do not prevent the recurrence of the spasm. Even chloroform, administered both externally and internally, has failed to effect more than a slight temporary alleviation from pain. I believe there is only one remedy that holds out any certain prospect of saving the patient's life, and that is, the removal of the limb. And even this, to be effectual, must be performed before the spasms become general or frequent.

An examination of the limb after removal will frequently explain satisfactorily the cause of this affection. We in general find that a portion of nerve has become impacted between the fractured ends of the bone, and that it has become severely pressed on and subsequently inflamed. And to this we must attribute the spasms and pain, although we cannot so readily explain how they become so general over the body, and so rapidly fatal.

As to whether the operation of cutting down on the injured part, and freeing or dividing the nerve, would be effectual in removing the symptoms, I cannot speak from experience, but from recorded cases. I think we may infer that some such proceeding has at times been successful, and I would be the more inclined to recommend a trial of this operation, now that we can avail ourselves of the assistance of chloroform, which, although it does not stop the spasm, yet may cause it for the time to be less severe, and will almost certainly render the patient insensible to pain. Still we must be guided in a great measure by the nature of the injury; in general, it would be a tedious operation, and would be very much impeded by the spasms, which our manipulations must very naturally aggravate in frequency, if not in severity; and the patient suffers such torture, and the disease advances so rapidly, that seldom either patient or surgeon, if fully aware of the alarming nature of the case, would hesitate in having recourse to the speediest and most effectual means of obtaining relief.

This is the form of spasm which has been, I think, most frequently mistaken for tetanus. I have myself more than once seen the error committed, and the time for operation allowed to pass by, in many endeavours to remove tetanus, where this disease did not exist. I have no doubt but that success in a few cases of this disease induced Baron Larry so strongly to recommend amputation as a cure for tetanus; and this opinion will be strengthened if we examine the symptoms, where these are accurately recorded, which he adduces as proofs of his assertions, and we must, from a consideration of them, I think, conclude that he is describing the symptoms of this form of spasm.

The *third* form of spasmodic affection is that denominated tetanus. This generally comes on towards the cure of the injury, about the time the sloughs have all been separated, and the wound puts on a healthy, healing aspect, that is, about two or three weeks after the receipt of the injury. It commences with stiffness about the jaws, the muscles becoming rigid, rendering the motions limited and swallowing difficult. The stiffness gradually extends to the chest, abdomen, and extremities, and this rigidity once established, does not one instant relax during the entire course of the disease; and this it is which gives to the face that peculiar expression of countenance which, once seen, can never be mistaken.

Along with this rigid state, the muscles are also attacked by spasm, in which they suddenly become more contracted. This spasm is attended with a jerk in the expiration, and a sudden pain in the scrobiculus cordis, after it the muscles return to their former rigidity, but never relax. The spasms increase in severity and in rapidity, and the disease may thus continue for two or three weeks. During its course, we find little or nothing to connect the local with the general symptoms; the wound still looks healthy, the secretions from it become very trifling; the patient does not complain of any pain there; in fact, it has happened that he has entirely forgotten the fact of



his having had an open sore. On examination after death, we can find little or nothing to account for the symptoms.

As to the treatment of this spasmodic affection, I do not now purpose to offer any suggestions. I will merely remark, that if there is one point on which surgeons of the present day are agreed, it is, that amputation has no influence on the progress of the disease. Hence the great importance of distinguishing these two last forms of spasmodic affection, so as not to treat them as the same. In order to show the more important distinction between them, I will compare their more essential differences, and thus attempt to render the diagnosis of each clear and distinct.

1st.—The second form of spasm which I have described comes on in three or four days after the accident.

2nd.—It commences by spasm in the limb injured.

3rd.—In the intervals between the spasms in the former, the muscles are quite relaxed, and the patient can swallow and move with comparative ease.

4th.—In it the pain is chiefly in the wound, and is most excruciating during spasm.

5th.—It runs its course in three or four days.

6th.—In it amputation holds out the only prospect of relief.

7th.—The former seems to have a local origin.

Tetanus seldom appears before the second or third week.

Tetanus by stiffness of the throat.

In tetanus there is, as the name implies, constant rigidity, almost preventing swallowing or motion of any description, and giving the peculiar expression of countenance.

In tetanus there is no pain in the wound, but a pain, not very severe, at the scrobiculus cordis.

Tetanus may continue for as many weeks.

In tetanus amputation is perfectly useless, if not injurious.

Tetanus is more of a constitutional affection.

Such are the leading distinctions between these two forms of spasmodic affection; and although the symptoms may not every one of them be so distinctly defined as I have here denoted, yet the majority of them are always present, and quite adequate to enable us to form a correct judgment as to the line of treatment to be adopted.

It now merely remains for me to allude to that form of spasmodic affection which is consequent on the healing of the wound where the end of a nerve becomes engaged and pressed on by a tight cicatrix. This affection, sometimes denominated *tic douloureux*, is attended with considerable darting pain and spasmodic action of the muscles of the limb; sometimes extending through a considerable portion of the system. This pain and spasm are in general induced by the slightest touch, or exposure to cold. It will continue for a long time without interfering materially with the general health.

External applications have afforded temporary relief, but in general the patient is anxious for the complete removal of the disease, which can only be effected either by amputation, or division of the nerve above the cicatrix.

In one very severe case of this affection in a stump of the arm, I removed two or three inches off the end of the stump, to the great relief of the patient. The case is fully related, and a drawing of the nerves given in Professor Smith's *Treatise on Neuroma*.

Spasms attending injuries of the brain constitute a different class of disease, as the affection depends on the local injury to the brain.

Such are the principal spasmodic affections which I have seen to attend on injuries; and I trust that I have established decided and well-marked distinctions between each. My object, however, has been to show that tetanus has hitherto been often confounded with another kind of spasmodic affection; to point out the distinguishing symptoms by which we may recog-



nise one from the other disease; to lay down satisfactory and defined premises, from which we can infer whether the operation of amputation will afford probable chance of cure in one and not in the other affection; in fact, to remove from the history and treatment of tetanus part of the doubt and uncertainty which attended them.

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ART. IV.—*On Congenital Deficiency of the Septal Walls of the Heart, as a Cause of Cardiac Murmurs.* By THOMAS H. LEDWICH, F. R. C. S. I., Lecturer on Anatomy and Physiology in the Original School of Medicine, &c.

THE effects of congenital deficiency of the septal walls of the heart have already been so amply discussed, that any further observations on them may seem to be an unnecessary attempt to prove statements fully admitted, or appear to be an injudicious desire to involve in obscurity a subject rendered simple in its details, not only by continental writers, but likewise by many distinguished physicians of our own country. It is not, therefore, without a justifiable hesitation that any writer should enter on the discussion of a topic that may develop opinions differing in many respects from what are considered as established facts in pathology, lest he might incur the imputation of ignorance, or that more common attribute of the present age, an egotistical indifference to the views of precedent authorities. But, fortunately, it is permitted to me neither to join issue with the statements of other writers, nor to promulgate any doctrines, starting only from their novelty, and difficult to reconcile with pre-existing ideas, as I have simply to detail morbid conditions, without either exaggeration or distortion, and to explain the physical manifestations which, according to mechanical principles, would supervene on altered structural arrangement.

At a recent meeting of the Pathological Society of Dublin, Dr. Lees exhibited the thoracic viscera of a child, the subject of tubercular pleurisy. The existence of a well-marked systolic

murmur, and its occurrence with patency of the foramen ovale, elicited some difference of opinion as to its source, while each seemed to be sustained by an equal amount of probability. Dr. Lees placed the heart, together with the notes of the case, at my disposal, in order that I might be afforded an opportunity of supporting my views, which I casually mentioned in the course of conversation on the subject; and as the analysis of the symptoms, and their import in diagnosis and treatment, may be of some utility, independently of any theoretical reasoning as to the cause of the murmur, the practical value of the case itself will conceal in some degree the imperfection of the physiological and pathological deductions.

Julia Martin, aged nine years, a delicate-looking child, was admitted into the Meath Hospital on Wednesday, the 26th of February, 1851. According to the statement of her mother, she had enjoyed tolerably good health until within the last fortnight, when she began to suffer from oppressed breathing, but never complained of pain in either side. Her symptoms on admission were as follows: Pulse 132; respiration 44; decubitus on the left side; measurement showing no disparity between the two sides; the anterior and posterior regions of the left side of the chest evinced dulness on percussion; respiratory murmur nearly inaudible, except in the supra-scapular and sub-clavicular regions; on the right side respiration was puerile, with an extensive and well-marked friction sound anteriorly and laterally; impulse and sounds of the heart most appreciable to the right side of the sternum, as also a loud murmur, synchronous with the first sound, most audible at the ensiform cartilage, but not traceable in the course of the sternum.

February 27th. The friction sound still continues on the right side, with dilatation of the superficial veins; no obliteration of the intercostal spaces; she lay for some time on the right side; murmur still continues audible: she has had some slight cough and perspiration during the night, but there is no anasarca.



28th. Scarcely any alteration in the general symptoms, but the friction sound is not so audible anteriorly.

March 1st. Pulse 128; cough more troublesome; friction sound still evident anteriorly; sounds of the heart most audible to the right of the sternum.

4th. Pulse 120; other symptoms unaltered.

6th. Pulse 124; respirations 46; friction sound replaced by a coarse, mucous râle; on the left side the dulness has extended to a level with the clavicle; the intercostal spaces less marked, but not altogether obliterated; cardiac murmur persists.

7th. Pulse 120; respirations 44; cough frequent, with muco-purulent expectoration; decubitus now continually on the left side; face blue and congested; feet slightly swollen.

9th. Muco-crepitating râle continues on the right side anteriorly and laterally, with puerile respiration and friction sound in the infra-mammary region; on the left side the dulness remains the same, with bronchial respiration evidenced posteriorly, corresponding to the large divisions of the bronchial tubes.

12th. Pulse 126; far more livid and congested in the face; mucous râle still persistent.

14th. Pulse 124; respirations 40; the râle very large, approaching to gurgling; on the left side the bronchial respiration is very marked superiorly and posteriorly.

17th. Pulse 132; the lips, hands, and nails are quite livid; the other symptoms unaltered.

20th. Pulse 146, very weak; a blister has been applied to the posterior part of the left side, and here there appears to be a tendency to the return of the vesicular murmur, with a corresponding diminution of the bronchial respiration; sputa muco-purulent.

21st. Pulse 128, small; respirations 40; she lies on the right side, the respirations on the left side are short, with muco-purulent râle; continued diminution of dulness; cardiac murmur persistent.

22nd. Respirations 52, very weak; sinking rapidly; face and hands purplish in colour. She died on this day.

Dr. Lees made the following observations, in describing the relation between the post mortem appearances and the symptoms that had existed during life:—"Thorax:—heart enlarged and dislocated towards the right side; a small quantity of sero-sanguineous fluid in the left pleural sac, and also slight adhesion between the costal and pulmonary pleuræ, but the fluid not sufficient to exercise any marked compression on the lung, which, although the seat of general tuberculization, retained enough of its vesicular character unaltered to be capable of action during respiration. The surfaces of the pulmonary and costal pleuræ of the right side were coated with a layer of exudation matter (lymph), in which numerous spots of tubercular deposit could with facility be detected. The lungs, spleen, and intestines were likewise the seat of the same disease, not only on the surface, but likewise interstitially. The physical signs were fully accounted for by the state of the lung,—the plastic effusion present on the right side explained the cause of friction sound, while on the left, feebleness of the respiratory murmur had been observed, and as the effusion increased in quantity, evidenced by dulness and dyspnœa, the breathing became bronchial, and again, with the diminution of the dulness, the bronchial respiration subsided, giving place to a feeble respiratory murmur, indicating that the vesicular structure was free to expand. At one period it had been a question whether it would not be advantageous to resort to paracentesis, and Dr. Stokes, who saw the child, agreed with me as to the propriety of such a proceeding, conceiving that as the lung was free to expand the operation might prolong life. On the first day I saw this child I pronounced it to be a case of tubercular pleurisy, guided in my diagnosis in some measure by the symmetrical development of the disease, because, as a general rule, where the pleurisy is double its origin is tubercular. The absence of pain in the side is not easily accounted for, nor can



the very sudden commencement and rapid progress of the disease be readily explained, unless it be considered as a case of acute phthisis, for if the account of the mother is to be relied on, it would appear that this extensive amount of disease had begun and terminated fatally in the brief space of a month."

If the examination of the physical causes of abnormal cardiac sounds involved the necessity of an extensive clinical experience, I would hesitate to express my deliberate convictions on the cause of the murmur in the present case, and willingly yield to those whose opportunities would enable them to arrive at conclusions more just, as being derived from an extended sphere of observation of diseased action at the bedside; but, being aware that physical signs deviating from a state of healthy functional actions must necessarily have their source in anatomical changes, appreciable to the senses, and influencing the physiological laws of the organ in its altered condition, I assume it to be a subject not altogether foreign to the province of those most conversant with the normal anatomy and function of the structures of the human body, and their aggregate as organs. Now few subjects have claimed more of the attention of the anatomist and experimental physiologist than the origin and correct localization of normal cardiac sounds, and were it not that post-mortem investigations materially assisted experimental research, and confirmed the inductions of the anatomist, the physiologist would still find matter for original investigation within the limits of this single organ. But whilst those conversant with the present state of science are aware that much diversity of opinion still exists on this question, yet our acquired information is quite sufficient to localize the majority of alterations occurring in the communications between the cavities of the heart or in the openings of its different vessels. It would be only recapitulating facts sufficiently well known were I to speak here of the causes of cardiac phenomena, and enter into an account of the arguments by which the various opinions of observers are sup-

ported, and rendered at least probable. Such disquisitions necessarily tend to embarrass the subject which they are purposed to illustrate, in proportion as they recede from a particular to a general connexion with the topic under examination.

The following were the post-mortem appearances of the heart in the case of Julia Martin:—It appeared somewhat larger than is usual at such an age, but this might in some measure be accounted for by the cause of death; right auricle a little dilated and thickened; eustachian valve large, so as to conceal the caval opening; foramen ovale large and patulous, and surrounded by a thick annulus; the proper valve destined to close the aperture stretched tensely across the inferior segment of the opening, and occupying about one-third of the space; right ventricle exhibits hypertrophy with dilatation, but somewhat exaggerated, in consequence of the mode of death causing engorgement of the right cavities of the organ; pulmonary artery a little smaller than the volume of the ventricle would require in its efferent vessel; semilunar valves perfectly healthy; auriculo-ventricular opening not dilated in an equal ratio with the ventricular valves, which were fully competent to prevent regurgitation, the only trace of disease being two or three apertures capable of admitting a very small pin, or a fine probe, the largest one near the free edge, the other near the base of the left tricuspid curtain; the left cavities of the organ did not present any morbid appearance either in their walls or valves, but it is a matter of doubt whether the aorta was not a little dilated above its origin.

From the preceding post-mortem appearances it may be inferred, that the source of the murmur might be looked for in either of three situations, namely:

First. In the auriculo-ventricular valves (right side).

Second. In aortic dilatation.

Third. In the patulous foramen ovale.

These propositions will now be examined in their order of succession, and I will at the same time explain the reasons which



induce me to attach but slight importance to the first as causes ; also the reflections which constrain me to the opinion that it was a sound depending for its production wholly on the con-nate imperfection, and rendered more striking by its special complication with pulmonary obstruction, impeding the natural course of the circulation.

The cause of murmurs in connexion with the right auriculo-ventricular opening has its origin in anatomical changes affecting the valves, and interfering with their normal action of closing the auricular orifice, and thus preventing regurgitation. Whether this change manifests itself in thickening and contraction, adhesion to the walls of the ventricle, in vegetative exudations, or in rupture of the regulating tensors of the valves (*chordæ tendineæ*), the effect on the functions of the right cavities of the heart is the same, producing analogous physical manifestations ; and as these alterations constantly attend on the very condition which existed in this case, it would appear to afford *primâ facie* evidence that in this situation lay the source of the murmur. But unfortunately the anatomical condition of the valves negatives the conclusion, as the tricuspid curtains were perfectly adequate to the performance of their accustomed function, the only trace of disease present being three small apertures, of which one was most certainly accidental, and all were in such a position that they could not possibly allow the most trivial amount of regurgitation to occur, unless that inconsistent and justly exploded idea, that the valves at each systole of the ventricle are thrown down horizontally across the opening which they protect, still continues to receive credence, —an opinion derived probably from observation on the aortic valves thrown across their opening by a column of water. But the auricular valves are far differently circumstanced. Instead of being merely subservient to a column of fluid straining them from a vertical to a horizontal direction, they are amenable to the vital action of the *carneæ columnæ*, which act, not to horizontalize them, but simply to oppose their inner aspects, a cir-

cumstance demonstrated by the removal of the anterior wall of the right ventricle in a rabbit under the influence of chloroform, or killed by a sudden blow on the back of the neck, when it will be then evident that a small aperture in one valve must of necessity be closed by the opposite curtain during the systole of the ventricle. Where tricuspid regurgitation exists, the right auricle is sometimes larger than its corresponding ventricle, but generally there obtains a relative equality in the cavities as to size, while in this case the ventricle exceeded the auricle by a fourth at least. Now this excess in the capacity of the ventricle, in comparison with the auricle, would seem scarcely to invalidate the supposition of regurgitation, as a part of the regurgitant blood might have escaped through the septum auricularum into the left auricle, and thus destroyed the usual parity of size between the right cavities. This mode of explanation would, however, involve an increase in the capacity of the left auricle, consequent on the greater amount of blood entering it, but there did not exist any such dilatation which might warrant us in arriving at such a conclusion. Further, if regurgitation did really occur, venous congestion of a persistent character would have manifested itself, as well as venous pulsation of the jugulars, so well marked that it could scarcely have eluded the observation of the physician during life, but such phenomena are not recorded in the notes, and must consequently have been absent.

The murmur, then, could not arise at the auriculo-ventricular opening: firstly, because there was present in that situation no morbid change sufficient to account for it; secondly, because the condition of the auricle was in an inverse ratio as to size with the ventricle when compared with that cavity; and, thirdly, because the signs referrible to the veins did not exist.

The second cause to which the murmur might be attributed is the dilatation of the aorta immediately above its origin. The increase is scarcely appreciable, but, as it has been



suggested as the cause of the abnormal sound, it is but just that its probability should be examined and discussed. It is difficult to account for this increase in capacity of the ascending aorta, unless it arose from the pressure of the tubercular lung on the descending portion of its arch, a circumstance I have often noticed in the dissecting-room; and this is far more probable than that it originated from patency of the ductus arteriosus permitting a flow of blood from the aorta into the pulmonary artery, this condition being only remarked in cases of occlusion of the latter vessel at its origin, when the circulation functionally resembles that of reptiles. To produce this peculiar state, three conditions are absolutely requisite, whether congenital or acquired: firstly, occlusion of the pulmonary arterial orifice; secondly, patency of the foramen ovale, or deficiency of the septum ventriculorum; and thirdly, patency of the ductus arteriosus. But the pulmonary artery was in this case quite healthy, and although, when describing the heart, it is mentioned that there was a disparity between the vessel and its cavity, still, when it is remembered that the child frequently laboured under impending suffocation, and that the right ventricle must have been engorged at the period of dissolution; combined with the fact that the heart's cavities undergo dilatation much more rapidly than the blood-vessels which are connected with them, this apparent contradiction can be reconciled. Moreover, in order to produce the murmur, there should be a disparity between this dilatation and the aortic opening, which was not the case. But the gravest objection is the position of the murmur. It was most audible at the ensiform cartilage, but was not to be heard in the course of the sternum, passing in an upward direction. If, therefore, it were aortic, it should have become more audible in the ascent, and not in the descent towards the right edge and apex of the heart. The objections to this being the seat of the murmur appear then to be, firstly, the equality in size of the aortic orifice and the tube

above the heart; and, secondly, the position of the murmur as to its audibility.

Permanent patency of the foramen ovale cannot of itself be invested with too much importance, but when it occurs as a complication of other disorders, the diagnosis of its existence forms a subject of material moment in the study of disease; and, therefore, any circumstances calculated to throw light, even approximatively, on its discovery, should receive some attention. So long as cyanosis was considered to be an unavoidable concomitant of this arrest of development, the non-existence of this sign was considered as a sufficient proof of the normal condition of the septal wall of the heart, but since the observations of Louis and Cloquet have demonstrated the fact that patency does not invariably produce cyanosis, nor is cyanosis always the effect of such deficiency, the opinions entertained on this subject have been considerably modified, and its recognition has been rendered doubtful, and probably conjectural. From this may have proceeded the dubious remarks of auscultators, as they express themselves on the value of physical signs in cardiac abnormalities, and their hesitation to assign distinguishing characters to them. As the abnormality may differ in position, it cannot be denied that such signs must be subject to considerable variations, but this is a condition equally common to all such evidences of disease continuing so long as physical phenomena are produced and influenced by the constantly altered force of vital actions. But, even if a comparative value can be attached to any signs or symptoms as indicative of a single pathological condition, though its occurrence cannot be prevented, or its consequences averted, still its recognition must always confer an indisputable advantage on differential diagnosis. The eustachian valve in this heart was exceedingly large, and concealed the inferior caval opening. No signs of reticulation were present, which would indicate that the modelling process, by which parts of no further use in the economy are



removed, had commenced. Meckel had noticed this persistence in several cases in connexion with imperfect auricular septum. The foramen ovale was patulous, and its inferior third occupied by its proper valve, which was, no doubt, sufficient to close it in infancy, but now was merely stretched across, its inferior third becoming quite tense during the dilatation of the auricle. Hence I infer that during the diastole of this chamber, a portion of the blood of the inferior cava, in passing into the left auricle, played on the margin of the valve of the foramen ovale, and produced the systolic murmur. Still, the question naturally suggests itself here,—was this murmur continuous from birth to the period of death, or was the patency of the opening merely secondary to the disease of the lung? I am disposed to agree with Abernethy, that, under certain diseased conditions, the fossa ovalis is again capable of becoming a free opening. To permit of such an occurrence it is essential that the valve should not be adherent to the annulus at its upper border, and that there should be some pulmonary obstruction present, and in this case it is most probable that such was the course of events: first, obstructive disease of the lungs; second, dilatation of the right side of the heart: the septum auricularum participating in the distention, the diameter of the fossa ovalis was rendered greater than the valve; third, communication between the auricles, with or without cyanosis. This view may in some measure account for the rapidity of the disease and the severity of the symptoms.

There are, no doubt, many objections to this mode of accounting for the murmur, but even those which are apparently the most probable are refuted with facility, and proved to be fallacious. These objections are, first, that the murmur, if venous, ought to have been continuous; second, that according to this explanation the left auricle should have been dilated; and third, the non-development of cyanosis in a marked degree, although commixture of venous and arterial blood is admitted.

The first objection is negatived by the fact, sufficiently well known, that the intra-pericardial portions of the venæ cavæ correspond in rythmical movements with the auricles, rendering a period of repose in a murmur connected with them as explicable as if its source lay in the auricular openings or arterial trunks. The force of this objection would, however, be quite admissible in all veins where the current wave is continuous, but the cavæ are the exception to this rule. It has also been suggested that the left auricle ought to have been in an inverse proportion to the right in size, if the blood passed directly to the left side from the inferior cava; but by a little reflection it will appear that, in order to reach the left auricle, the blood must necessarily pass through the right, and thus be common to both; therefore, a disparity as to size would be unnecessary, and an argument drawn from it totally inconsistent with reason. The absence of cyanosis would seem, on superficial investigation, to militate against the rationalè of the murmur, as, in order to produce it, I admit that an admixture of the arterial and venous bloods was required, but Louis distinctly denies that this admixture is the cause of cyanosis, attributing it to an impeding of the return of venous blood to the right side of the heart; and whilst there are so many objections to the opinions entertained on this subject prior to his observations, it would certainly be straining the argument to assert that in this case cyanosis must have been present. In reptiles, where impure blood circulates in every structure, the tissues are not the less white, nor are the tegumentary coverings of the foetus marked by a cyanotic tinge, although the blood at that period must necessarily partake more or less of a venous character, at least in the lower extremities. Besides, the sudden appearance and rapid decline of cyanosis in patency go far to prove that its presence or absence possesses but a slight physiological import in these deficiencies. But even here, in this child, when the cough produced violent efforts at expiration, the nails and face became purple, and an immediate subsidence of this condition occurred



as the respiration became free again and unembarrassed. In the absence, therefore, of any valid objection, I do not conceive it improper to consider this explanation a legitimate addition to the recognised causes of cardiac murmurs, and if this paper may have the effect of directing the attention of others more competent to the task to devote their labours cautiously, and without prejudice, to the examination of similar cases, studying the laws of nature in disease with the single object of assuaging pain and averting human suffering, my only desire will be attained.

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ART. V.—*Notes on Cases of Syphilitic Meningitis*. By THOMAS READ, M. B., L. R. C. S. I., Belfast.

“Lues Gallica, licet quasvis fere partes corporis occupet aliquando, frequentius tamen superiora invadit. . . . unde et inclusum his encephalum pessime afficitur, et varii capitis morbi sequuntur. Sæpe observantur cerebri læsiones in lue Venerea inveterata, a levissima vertigine, ad lethalem apoplexiam usque: pessimam Epilepsiam, cæcitatem, surditatem, &c.

“Possunt oriri tumores gummosi, et exostoses, in calvariæ osseæ parte interna, quæ premendo cerebrum, omnes ejus functiones turbant.”—GERARDI VAN SWIETEN *Commentarii*. Lug. Batav. 1772, vol. v. p. 404.

“On the *post mortem* examination we found the dura mater firmly adherent to the cranium, and also to the visceral layer of the arachnoid, for an oval space, two inches in the long, and an inch and a half in the short diameter. At this point the dura-mater was three or four times its natural thickness; below the two layers of the arachnoid there were two large masses of yellow colour, like concrete pus, opposite to which were corresponding depressions or concavities on the surface of the cerebral hemisphere; at these points the cerebral substance was slightly softened, and redder than natural; at the same point, on the opposite side of the skull, a similar morbid alteration in the dura mater and arachnoid was commencing.

“Symptoms of this case before death:—Great loss of memory; fits; imperfect paralysis of right side, and pain of right parietal region.”—DR. TODD, *Clinical Lectures, Medical Gazette*, January, 1851.

For above thirty years no disease has obtained more of the attentive inquiry of surgeons than syphilis, especially in its primary and secondary forms. The announcement of a plurality of poisons, and that venereal sores would heal, and syphilis at

any of its stages might disappear by an unaided effort of the constitution, aroused the wonder, and invited to similar investigations many surgeons throughout Europe, and subsequently wherever civilised man has made his habitation on the earth. It has been a great epoch in medical history; but it may be asked, is our knowledge complete and settled after so protracted an inquisition? The latter positions—the healing of venereal sores, and the disappearance of syphilis without the intervention of mercurial action—is an established fact. The plurality of poisons is still “sub judice,” a controverted and unsettled point, either to confirm or confute which would need a systematized course of rigid experiment never yet carried out. Mr. Carmichael maintained, that the uniformity of syphilis in infants, no matter what the original form of disease of the parent (whether papular, pustular, or phagedenic), did not militate against his doctrine; neither did a common assemblage of symptoms in the tertiary forms of the disease in the adult seem to him to oppose his assumption of the plurality of poisons. His reasonings are to me far from conclusive, and his facts seem to be at variance with his theory. In the morbid phenomena of the other animal poisons (small-pox, scarlatina, measles, &c.), we constantly observe great diversity of external appearance, with constant and regular repetitions of the same diversities; we recognise them as influenced by the existing state of the constitution of each individual at the time he contracts the poison. May not the individual constitution likewise modify the external phenomena in syphilis? If the concluding series of visible and constitutional symptoms resolve themselves into identity, is it not a strong ground of credence of unity at the origin? Those who wish to examine this question in its present equivocal and unsettled state, I would refer to the able and impartial statement of Mr. Aston Key, contained in his Report on Syphilitic Sores in Guy’s Hospital Reports<sup>a</sup>.

<sup>a</sup> Vol. iv.



The history of the cases appended to this paper has suggested these observations.

Among the most remote and latest signs of constitutional syphilis are those of cerebral origin, and to them I would desire to give a prominence and interest, that their deep importance entitles them, and their frequent obscurity requires, the more especially as those who seek for information in modern works and lectures, will find either a bare allusion to such symptoms, or entire omission of any notice of them. M. Ricord, alluding to the "*action of the osseous affections on the neighbouring parts*," thus speaks:—"Another consequence of this species of compression is epilepsy; but this otherwise formidable disease is in such cases easily got rid of. The fits commonly seize the patient when the osseous growth producing the compression gets more considerable and irritating. I must not omit to mention paraplegia as a casual effect of tertiary syphilis in the bones; the nervous disturbance is then the result of an osseous lesion, which latter begins by circumscribed nocturnal pain, and is developed very slowly. Paraplegia may also be produced by a cutaneous, elastic tumour; but I need hardly say the latter is never preceded by the gnawing pains which generally usher in osteitis." Mr. Acton<sup>a</sup> merely quotes this extract from M. Ricord: on the disorder of the mind they are both silent. I wish here to refer to a clinical lecture delivered by Dr. Todd, of King's College, on the difficulty of diagnosis in tertiary syphilis. "The patient had contracted syphilis fourteen or fifteen years ago, and had a chancre and a bubo. He took a large quantity of mercury without medical advice, and was freely salivated. From many consequent evils attendant on this disease he seems to have escaped pretty well, and no unfavourable symptoms occurred till five years ago, when he applied to one of the metropolitan hospitals for contraction and rigidity of the flexor muscles of the right fore-

<sup>a</sup> A Practical Treatise on Diseases of the Urinary and Genital Organs. By William Acton. Second Edition, 1851.

arm, and numbness of the same region. The nature of this case *was mistaken*, and, after leaving this, he went from *one hospital to another, but got no relief*. A friend gave him a prescription which cured him. It was hydriodate of potash. Mr. Bowman recognised the disease."

I may observe, that the clinical lectures of Dr. Todd possessed great interest for me, as our observations were so perfectly independent of each other. His remarks on the liability to error in diagnosis, the almost unvarying success of treatment under clear diagnosis, the occasional indispensable resort to mercury, so fully correspond with my own experience, that I cannot but feel support and confidence in submitting the cases appended, as illustrative of the necessity for additional inquiry, and for an endeavour to obtain a more exact diagnosis, which cannot fail to insure treatment more successful.

CASE I.—*Syphilitic Meningitis; Paraplegia; Hemiplegia; Amaurosis; Difficulty of Articulation, with Mental Hebetude.*

Mr. F., in July, 1847, was accompanied to my house by a surgeon of Belfast, who was naturally alarmed by the rapid advances of paralytic and other cerebral symptoms in his case. The patient required to be supported on his feet while his clothes were removed from the upper part of his person. His speech, from difficulty in articulation, was very imperfect; his powers of arranging his ideas and memory were slow and defective; vision very imperfect in both eyes. The gentleman who accompanied him had known him for some time. He had been treated for years by another surgeon for secondary syphilis,—chiefly intractable ulcers on the limbs, face, and head; and on these parts there were several large cicatrices. He had placed himself under the former gentleman's care for progressively increasing amaurosis; the paralytic symptoms supervened, and rapidly advanced until he exhibited the aggravated and almost hopeless state of general paralysis in which I saw him. The history of the case, his countenance, and general appear-



ance, led me to the impression that all the symptoms might be assigned to compression of the brain by development of syphilitic tumours of the dura mater; but as this could not be a certain diagnosis, and to guard against an error in judgment, I considered the rapid exhibition of mercury to be the safest course. I therefore advised the entire scalp to be shaved, a blister applied immediately over it, and one drachm of strong mercurial ointment to be rubbed in on any convenient surface twice a day. But I apprehended a speedy appearance of coma, and a necessarily fatal result.

Some eight days afterwards I saw his surgeon, who told me that our patient had made a rapid recovery, and was then able to run up and down the steps of a very steep staircase. To my additional surprise, a well-looking, dark man, with clear and expressive eyes, addressed me one day in the street, and, asking me if I did not know him, brought to my recollection the visit of himself and his medical attendant to my house less than three weeks before. He was completely recovered, looked in full health, had perfectly regained his powers of motion, vision, and articulation, and was in full possession of all his faculties. Mercury here released every oppressed organ, gave flesh and strength by restoring the animal functions, and afforded one of the happiest triumphs of medical art over disease I ever witnessed. Death must rapidly have closed the scene, had not this powerful and efficient agent arrested its course.

*Remarks.*—This patient was about thirty-two years old, with eyes, hair, and complexion as dark as any native Italian; well formed, naturally of a very robust frame, and with the semblance of a good constitution. About four years before I saw him, after a suspicious intercourse, a bubo formed in the groin. No sore or cicatrix was seen on the penis. He placed himself under a well-educated and skilful surgeon, who thought it advisable, notwithstanding the absence of chancre, to administer mercury for some time, under the use of which the bubo

disappeared. After he had discontinued mercury, it again formed, and burst while he was engaged in active exercise. Some months subsequently he was attacked with an eruption which produced intractable ulcers. His surgeon treated him without success, as to their healing, for many months, until he went to the sea, and then they healed while he was using the open sea-bath.

It is worthy of observation, that here we have a bubo without chancre. This bubo was certainly not phagedenic, yet was followed by what I conjecture to have been rupia.

Whether a man be a mercurialist or a non-mercurialist, he may admit it to be quite true that the ulcerative forms of syphilis do not encourage the employment of mercury; but I feared to rely on hydriodate of potash in a case of such extreme emergency. And I must add that I still have to acquire the enthusiastic confidence of M. Ricord in its unerring dominion over tertiary syphilis.

The patient has since been well able to pursue his business in life, but has suffered many of what Ricord calls the accidents of tertiary syphilis; he has had many attacks of cranial pain, want of sleep, pain, enlargement of bones and joints, and very lately he has had double sarcocele; all have, more or less readily, yielded to the hydriodate of potash. The doses are now raised to half a drachm three times daily. He has the confirmed syphilitic diathesis; but he makes out life '*versus*' disease, with good grounds to expect his constitution will finally surmount his malady; his life has never, since the paralysis, been in the slightest danger.

CASE II.—*Syphilitic Meningitis; Mental Incompetence; Incoherency; Suicidal Propensity; Paralysis.*

Mr. M., a gentleman about twenty-six years of age, was attacked with hemiplegia of the right side while travelling in a night mail. His intellect was disordered, and he was incapable of appreciating his own state and directing accordingly. A cler-



gyman, who lodged in the same house, requested me to see this gentleman about eighteen hours after the attack. He informed me, that some months before he had observed incomprehensible ramblings in his conversation, and the expression of strange and incongruous ideas. This had become apparent in the course of his daily occupation, one of trust and considerable mental labour; and the head of the establishment had placed him under the care of his own physician, a gentleman of experience and in extensive practice, who considered it requisite to have *every means for self-destruction removed out of his reach*. After some length of treatment, he advised change of scene, and all the adventitious aid of new associations and amusements, if possible to change the current of his ideas. He went to friends in London, and while there, they deemed it requisite to induce him to place himself under the care of a physician, who (on what ground I do not know) prescribed for him hydriodate of potash, with decoction of sarsaparilla, which he used for about five weeks. He returned, in some measure improved, and resumed his official duties. He was on business connected with his office, and returning home, when he was seized with paralysis. All this I learned from the clergyman, whom motives of humanity induced to take a great interest in the matter. He was aware that the invalid had formerly been under my care, and that I probably had a more intimate knowledge of the private history of his life than any one else. In fact, he had come to me with an excavated syphilitic ulcer of the throat more than twelve months before. I was dissatisfied with his want of steadiness in following my directions, and he broke off attendance before I dismissed him. In some months after he again called on me for advice. He had syphilitic iritis of both eyes. There was no eruption. He again returned to his employment, earlier than I advised. Considering the antecedents, and the slow progress of his cerebral symptoms, which I count as significant of intra-cranial syphilitic disease, I believed that his disease was syphilitic menin-

gitis, with deposition. I took blood from the arm, had the head shaved and blistered, gave active purgatives with tartar emetic, and, after the free action of the bowels, began the use of mercury. In about four days mercurial action was established, the disease rapidly disappeared, and there was a perfect restoration of his mental and bodily functions.

*Remarks.*—It may be alleged, that the treatment for paralysis was in accordance with that usually employed, which is by no means disputed. It is the antecedent condition of mental disturbance, the length of time it existed in a chronic state, without being amenable to treatment by the ordinary remedies, its mitigation under hydriodate of potash, and the previous history, which seem to me to justify the assumption, that syphilitic tumour of the dura mater was the cause of this cerebral irritation. The perfect disappearance of every symptom, under mercurial action, in a period incomparably shorter than that in which cerebral disease, originating from causes of more usual occurrence, would have disappeared, confirms me in that view. As this gentleman, soon after his recovery, emigrated to a very distant region, such incontrovertible testimony of the fidelity of the diagnosis cannot be adduced as substantiates that of the previous and the following case. I only know, that some months after his arrival in the country of his adoption, in a letter to a friend he expressed the warmest feelings of obligation and gratitude to me for the enjoyment of perfect restoration to health. A drier, warmer, and more equable climate is undoubtedly among the agents capable of overcoming the syphilitic diathesis.

CASE III.—*Syphilitic Meningitis; Epileptic Seizure; Intermittent Cranial Neuralgia; Mental Derangement; Paralysis of the Sphincters.*

Mr. I. T., aged forty years, while with a coursing party on a mountain, suddenly fell, became insensible, and was much convulsed. The insensibility, his companions say, lasted half-



an-hour. He then gradually recovered, without any deprivation of the power of motion or of sensibility. He was seen by a physician on his return to his friend's house. Nothing, I believe, was prescribed, except some aperient medicine, and caution as to regimen. When he came back to Belfast, and called on me, he looked ill and cachectic. I advised him to resume the hydriodate of potash, which he had before used for various tertiary syphilitic symptoms. He improved again in health, until a subsequent period of about three months, when, on a journey, he sat in wet clothes for more than three hours. He did not apply to me until four days afterwards. He then complained of pain of the head; his countenance looked pallid and cachectic; his pulse was soft and undulating (an unfilled artery) and slow; the points of the fingers very pale and cold, the nails blueish, denoting an imperfect capillary circulation. He said he required a good purging and he would be well enough; as he had been living freely I consented. Active purging brought no relief; the cerebral pain became aggravated, and he had no sleep. He was ordered a full opiate, after which he slept well; but the pain in the head now came on in paroxysms, with intermission; I then prescribed for him quina, and continued the opiate at night.

The pain of the head in its extreme intensity resembled neuralgia. He had nights of distracting suffering, and no relief obtained except from quina and opium. I next ordered for him ten grains of hydriodate of potash in solution every sixth hour. His suffering increased, and he became so excited under the want of relief, and his friends so exceedingly alarmed, believing the attack must end in apoplexy, that I obtained the assistance of a physician who was familiar with his case for some years. This gentleman entirely concurred with me as to the impropriety of bleeding (which was urged by the patient and his friends); and also that our only dependence, on the failure of the iodide of potassium, was in mercury, which formerly saved his life. The vertex was shaved, and extensively blistered,

and half a drachm of mercurial ointment rubbed in night and morning. Generous living was directed, with animal food and wine. The blister was dressed with a weak ointment of tartar emetic. On the fourth morning the gums became florid (previously the gums and mucous membrane of the mouth much resembled those of an anemic female), with decided relief of all the symptoms, but no mercurial fetor. We continued the mercury for a fortnight, but did not obtain satisfactory evidence of its constitutional action, except the perfect subsidence, from the fourth day, of all his distressing sufferings, when he refused to continue it any longer; we therefore advised him to resume the hydriodate of potash, as before directed.

Six weeks after the last attendance I was asked to visit this gentleman again. His disorder had now assumed a different character. He ceased to take an interest in any of his former pursuits; he never spoke except when addressed, and then said "he was not ill," and had no pain whatever. It was observed that he fell asleep whenever he sat down, he also slept during the night. Occasionally he took up a book, but it was very apparent he made no mental effort to comprehend the contents. In this state he remained, with little change, for several days, then it was observed that he had lost reckoning of time as to the day of the week, the hour of the day, whether he had taken his meals, &c. When he spoke he believed persons long dead to be alive in the house. At last a disposition to be violent and excitable caused much alarm. He, however, quietly submitted to have his head shaved and a blister applied, and he was ordered ten grains of the hydriodate of potash every sixth hour. He had not the slightest pain; there was no fever; his skin was cold; pulse low and very feeble, sometimes scarcely discoverable at the radial artery. The mental disorder having exhibited more marked evidence of its nature by acts of a more public character, it became necessary to have him placed under strict observation, but without restraint. The sphincters of the bladder and rectum then lost their power; which, with



other threatening symptoms of cerebral engagement, determined us once more to have recourse to mercury, which again, though more gradually, was attended with the happiest results. First the sphincters resumed their power: the pulse became developed; he took food; his mind recovered its coherence and correct perception, but his manner was torpid and indifferent. On account of the anæmia, he got ten drops of muriated tincture of iron three times a day. Although one drachm of mercurial ointment was well rubbed in night and morning, its sensible action was limited to a slight turgescence and florid colour of the gums; otherwise its effect was only shown by retrocession of all the morbid symptoms, and progressive regeneration of health. In three weeks the rubbings of mercurial ointment were discontinued, and he took corrosive sublimate, gradually increased to one grain a day, in compound tincture of bark. He remains in health now more than a year, and has resumed active bodily exercise, which he had given up for several years.

*Remarks.*—My knowledge of this case commenced about six years ago. The patient had then an eruption, scaly and papular, which his surgeon (since dead) considered to be syphilitic; he himself discredited that view of its nature. I agreed with his surgeon. The patient said he had taken decoction of sarsaparilla and hydriodate of potash until they excited so much loathing that he refused to take more. He was then, by direction of his surgeon, using hydriodate of potash in pills. I advised mercury, but it was not given. Three years after this period I saw this gentleman, in consultation with a physician, his personal friend, who had seen him occasionally under very much broken health; he complained of great pain and difficulty in swallowing; it came on gradually, and increased so much, that when I saw him he declared deglutition to be impossible, and had nearly abstained from food, even liquids. He was without sleep at night, and in a state of the most abject despondence. His physical powers were so prostrate (although he had been a remarkably muscular, energetic man)

that he was wheeled about in a Bath-chair; his colour was quite pallid, and of a peculiar leaden tinge; pulse feeble; he was in fact sinking under the combined effect of inanition and deprivation of sleep. His voice was snuffling, like that of a sufferer under syphilitic disease of the nasal passages; yet the closest examination showed no ulcer of the throat, fauces, or nose. All the mucous membranes were particularly pale, that of the pharynx extremely tumid and swollen, and the *isthmus faucium* much contracted. Externally, beneath the inferior maxilla, in the sub-mental space, there was a large cluster of absorbent glands filling it up; at the lateral parts on both sides of the neck there were many of the glands enlarged, altogether throwing great obstacles in the way of an examination of the throat; over the mastoid process of the left temporal bone there was a distinct tumour of the pericranium, which had softened, and contained matter. After very mature deliberation, I came to the conclusion that the disease was syphilitic cachexia. The physician who was associated with me gave me his full concurrence and support, and we agreed to introduce mercury into the system with the greatest caution. Fifteen grains of mercurial ointment were rubbed every night on the inside of the thighs; a full opiate was given at night, and as much fluid aliment as he could be induced to swallow; on the third morning mercurial fetor was apparent. Before the mercury acted, great alarm was caused on two successive nights by suffocative spasm of the larynx, which caused us infinite anxiety, and rendered it necessary to have a medical man sleeping in the house. The fourth morning ptyalism was so marked as to forbid the next friction. All the symptoms were diminished; periosteal abscess much smaller; glands reducing, and unmistakeable improvement in deglutition. Afterwards it was a case of steady progress to the twelfth day, when he was going about, perfectly recovered in his own opinion. All his symptoms were removed, no doubt, and he was strong and able to walk about freely. He refused any further treatment.



In less than three weeks the glandular tumours had returned. He blistered himself on the throat, as to this measure he attributed his late recovery; but the glands still increased, and he again submitted to be treated. He objected so strongly to use the ointment, that we gave the medicine internally,—the green iodide of mercury with hemlock and opium. All symptoms again rapidly subsided, but he complained of colicky pains, and much depression. Notwithstanding his complaints he improved daily in flesh and strength, and indulged an excellent appetite. We still urged the continuance of mercury, though all traces of disease were removed, except the residue of the glandular tumours beneath the lower jaw. He determined, however, on going to Dublin for advice, and there placed himself under a surgeon of the highest eminence. In Dublin it was doubted that the disease was syphilis; he got gentle tonics, with a very nutritious and stimulant diet, and his night opiate was discontinued. At the end of two months his bodily vigour had again decayed; he abandoned all medical treatment, and to the eyes of his friends he appeared to be sinking. He was now induced to leave Dublin and go to the neighbourhood of Kingstown. The change of air and a wonderful effort of the constitution raised him out of his extreme debility; his appetite returned, and he quickly rallied; in a month he came back to the north of Ireland.

After six months of good general health, a new train of tertiary symptoms commenced. Elastic tumours formed in the areolar tissue, external to several muscles, over the biceps, the deltoid, and the pectoral. They soon disappeared under the administration of the iodide of iron. The next distinctly syphilitic symptom was double sarcocele, which yielded to a few leechings (when there was much pain), hydriodate of potash internally, and iodine ointment to the testicles. Several relapses followed. Hydrocele supervened, but all the symptoms were removed and restoration of both testicles brought about by iodine treatment.

For about two years Mr. T. enjoyed excellent health, with occasional threatenings of renewed symptoms. Iodine was to him a specific; and his general health became so good under it, that, on one occasion, he took it without interruption for four months. The dose was progressively raised from five to twenty grains, three times a day, but on the supervention of intra-cranial disease, the remedy became powerless.

Mercury was not administered, either for the primary or secondary symptoms. For the syphilitic cachexia only nine or ten frictions of fifteen grains each were used; for the relapse, thirty grains of the green iodide of mercury in twenty-one days.

The practical conclusions I would deduce from the foregoing cases are very obvious. First, That a single symptom of cerebral disturbance, such as some form of mental disorder, may alone indicate the organic mischief in progress; a cachectic countenance may excite suspicion of its nature; but a close investigation of the previous history of the patient's diseases and symptoms are required to affix its true character. Secondly, That the employment of mercury, in this late stage of syphilis, is unattended with those formidable consequences of which we are so strongly forewarned as forbidding its use. It is true, mercury never was pressed much beyond the disappearance of symptoms, and whenever employed, it was as the last resource of extreme peril and emergency, all other means having failed. But no measure of bodily exhaustion, even such as I feel the feebleness of words to represent, has deterred me from its employment once I had discriminated the disease, guarding myself, however, by a measure and method of use appropriate to the case.

I subjoin here the following contrast and comparison of mercurial action on the constitution of patients suffering from primary and tertiary syphilis.

When mercury has been administered for a primary sore,



in a constitution of unexceptionable health and vigour, it will not be disputed that its action will always be marked by physical reduction and depression. There will be loss of flesh and weight; muscular elasticity and power will diminish; the countenance becomes pale; the skin clear, and prone to perspire on slight exertion; the intellect unfitted for sustained effort. All these will occur, although the diet be adequately nutritious and abundant for a person in health, and moderate exercise and exposure to the atmosphere be still permitted. But under confinement, all these constitutionalevidences of mercurial action become more aggravated, together with in all, ordinarily, some degree of mental depression, and in some, alarming physical and mental prostration. In fact mercury in all cases visibly acts as a poison in a lower or a higher degree. Under this constitutional ordeal, the animal poison which is secreted by the sore is in some inexplicable mode neutralized, or prevented from entering into the circulation and contaminating the system. Such is a feeble and imperfect outline of the phenomena indicative of mercurial action in a sound person affected with a primary sore. But all these phenomena are directly reversed when the body has long sustained the inroads of the syphilitic poison, under which the powers of the constitution become prostrated. The more advanced the stage, the wider the range of involvement, the more signally does mercury, if *appropriately and judiciously employed at the right conjuncture*, exhibit its strange conversion into a tonic, and its prompt and most decided action as a restorative. All the functions of life are rapidly roused into vigorous effort—refreshing repose revisits the patient, worn with pain and exhausted by sleepless nights—appetite and digestion return—blood is quickly regenerated—the muscles recover tone and power—the eyes lose their dull and desponding cast, and resume brilliancy and expression—the mind becomes hopeful and exhilarated—flesh and weight are added, yet no medicine has been administered

except mercury. How to explain and reconcile these antagonising agencies I do not purpose to attempt: the facts I have repeatedly witnessed in several other forms of syphilitic cachexia, independently of the cases now related.

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ART. VI.—*Aneurisms of the Arteria Innominata ; their History and Differential Diagnosis from Aneurisms of the Arch of the Aorta*. By T. S. HOLLAND, M. D. Edin., M. R. C. S. L., Corresponding Member of the Parisian Medical Society, and Lecturer on Pathological Anatomy, Cork.

AMONG the many problems in diagnostic medicine requiring solution, not one probably possesses so high a practical or scientific interest, whose history has remained so long unwritten, and whose diagnosis rests on a basis so inaccurate, as that which forms the subject of this paper; and, while much must of necessity have escaped my notice, in a search for materials widely scattered through the medical periodicals of Europe and America, still I trust, that the earnestness of this attempt to fill up a gap in our medical literature will plead for these deficiencies.

The works of Hodgson and of Guthrie do not contain even an account of the cases of innominata aneurism on record when they wrote; Wardrop, in his book on Aneurisms, offers some suggestions regarding the diagnosis of these affections; but it is to Dr. Crisp's work on the Diseases and Injuries of the Blood-vessels that we must refer for accurate statistical information, as well on this as on all diseases belonging to the same category.

The literature of this subject, in French, consists of the following inaugural dissertations: M. King's, 1828; M. Poyer's, No. 100, 1839; M. Beistegui's, No. 195, 1841; and M. Lesage de Lahaye, No. 58, 1845.

M. Velpeau, in his article on Subclavian Aneurism, in the *Dictionnaire de Médecine*, vol. xxviii. p. 466, refers to some



of the cases of aneurism of the innominata, already published by M. Roberts, in his monograph, “*Sur les anévrysmes de la région Sus-claviculaire, 1842*,” as well as to those quoted by M. Beistegui. It is to M. Dubrueil (Professor to the Medical Faculty of Montpellier), however, that we are indebted for the first important suggestions regarding the diagnosis of these aneurisms from those of the arch of the aorta<sup>a</sup>.

In the *Theoretisch-praktisches Handbuch der Chirurgie*, by Rust, vol. ii. page 57, we find a short article on innominata aneurism. Neither Morgagni nor Scarpa have left us even pathological details of these lesions, and, as far as I can learn, there is no article on this subject in Italian. It is imperative on any one, before taking the diagnosis of this disease into consideration, to collect all that has hitherto been laid before the medical world on the subject; for, if it be true that successful treatment depends upon correct diagnosis, and that this latter can only be effected by having an accurate knowledge of the history of disease, it becomes a matter of all importance that, before we inquire what are the characteristic phenomena of these aneurisms, we should place some ground under our feet; empiricism in practice being less dangerous than generalization made on imperfect or insufficient data. This must be my apology for the following extracts from the English, American, French, German, and Italian journals, condensed as much as is consistent with accuracy.

No. 1. Mr. WARDROP's *Case*, from *Lancet* for July, 1827, page 465<sup>b</sup>.—Mrs. A. aged 45. A pulsating tumour, the size of a turkey's egg, presents itself in the neck, at the inner side of the sterno-mastoid muscle, its base being under the upper portion of the sternum. No pulsation can be discovered in any of the branches of the right carotid artery, although they have been most minutely examined; but in those of the left the circulation is extremely vigorous. The

<sup>a</sup> I have to thank Professor Dubrueil for having, at great personal trouble, forwarded to me the last copy of his work, entitled, “*Observations et Réflexions sur les Anévrysmes de la Portion Ascendante et de la Crosse de l'Aorte, 1841*.”

<sup>b</sup> The conclusion of this case is given in the second volume of the *Lancet* for 1828-29, page 788.

contents of the thorax were found to be in a healthy condition, except at the upper part of the sternum, over a confined space under the clavicular edge of the sterno-mastoid muscle, where a *bruit de soufflet* could be heard. There was severe pain through the left side of the head and neck, with a throbbing sensation in the tumour. She has at times great difficulty of respiration, and her nights are very restless; countenance expressive of great anxiety; pulse frequent, full, and throbbing. The disease commenced eleven years ago with difficulty of respiration, cough, and severe pains in the chest, head, and neck, which she considered to be rheumatic. Five months afterwards, she observed a pulsating tumour above the sternum, which has increased rapidly during the last three weeks, and the integuments covering the apex of the swelling have within a few days become painful. A fortnight ago, pressure had been made on the humeral artery by means of Mr. Searle's instrument, to diminish the current of blood through the aneurismal tumour; but the patient could bear the necessary pressure only for a short time. The subclavian was tied July 6. On the 8th of August, 1828, no tumour was perceptible in the situation of the aneurism, but a feeling of hardness was perceived at the root of the neck, arising, no doubt, from a condensation of the aneurismal tumour. Pulsation had returned in the right carotid, but with much less force than in that on the left side. The right radial artery beats with about half the strength of the left; the pains in the neck, shoulder, and back have disappeared for some time; her feet are no longer œdematous, and she takes exercise daily. About three months after, a tumour arose immediately above the sternum, occupied the centre of the neck, and some months after that a second tumour appeared, occupying the site of the right carotid artery, and extending up the right side of the neck, while its base united with that of the other tumour. She died 13th September, 1829. *Post mortem*.—The aneurism extended from the origin of the innominata to its bifurcation. The aorta, of the natural size, had a few points of ossification on it. Right carotid pervious and quite healthy. The subclavian is divided, and both ends closed where the ligature had been applied. The tumour, as large as a turkey's egg, occupied the central space between the two sterno-mastoid muscles, adhered firmly to the sternum, and had caused absorption of a portion of that bone.

No. 2. Mr. EVANS' Case, *Lancet*, 1829, page 187.—A butcher, aged 30, very athletic, enjoyed perfect health up to the period of an attack of bronchitis, when, in a paroxysm of coughing, on the 10th March, 1828, a soft pulsating tumour, the size of a walnut, appeared, covered externally by the sternal portion of the sterno-mastoid muscle. The force of its pulsations was increased by making pressure upon the right subclavian artery, while pressure on the right carotid, diminished or even sometimes completely arrested the pulsations. Right carotid and subclavian pulsate stronger than those on the opposite side, but the radial arteries appear to be of equal strength. The cough and dyspnœa ceased to be troublesome



as soon as the tumour appeared. Chest sounded well on percussion, and the respiratory murmur was distinctly audible at all points. A loud pulsation was heard over the tumour, unattended by any unusual sound. Mr. Evans diagnosed, that the root of the carotid was the seat of the disease. Valsalva's treatment was used, but as the tumour continued to increase in size, it was considered advisable to tie the carotid on the 22nd July, 1828. After the operation the pulsation of the tumour continued as before. During the two following days the pulsation was stronger than before the operation, and the right radial artery beat more forcibly than the left; on the third day he became feverish, pulse 120. On the 29th July (the seventh day after the operation) the right pulse became weaker than the left, intense pain was complained of in the course of the axillary and brachial arteries, which ended in the obliteration of these vessels. The right arm wasted, became partially paralysed, and not until the end of the third week were the anastomosing vessels seen pulsating on the back of the hand; as these vessels enlarged, sensation and volition slowly returned. The same set of phenomena occurred in the course of the right carotid; the right side of the head and face becoming emaciated, and remaining so for some time. Salivation set in without apparent cause on the 29th July, and continued until the middle of September. In the first week of October, the tumour is reported to be hard, firm, diminished a third of its volume, and pulsation scarcely perceptible, even on pressing deeply. On leaving his bed for the first time, a general numbness and debility of the right side was observed, which entirely disappeared thirteen weeks after the operation; but his temper remained irritable and his memory was evidently weakened. From the 22nd October, he attended market regularly at a distance of seven miles, and finally recovered his usual health.

No. 3. Mr. RAY's *Case*, *Lancet*, 1835, page 498.—A sawyer, aged 52, although a hard drinker, enjoyed good health until struck by a heavy piece of timber on the upper part of the chest, which threw him forcibly backward against the axle of a waggon. Since this accident he always complained of a constant, dull, gnawing sensation at both of the points where he had been struck. Various treatment was used, and in September his sufferings increased, dark coagulated blood being frequently ejected during fits of coughing. He soon became unable to use the left arm or lie on the left side, and finally could not remain lying down. On 12th November he coughed up a large quantity of blood, became comatose, and died. *Post mortem*.—Left pleural cavity full of blood; the lower part of this lung had an appearance resembling the spleen, and in its interior was a cavity capable of containing two ounces of fluid. A large aneurism arose from the descending aorta between the sixth and eighth dorsal vertebræ; it had completely absorbed two inches of the seventh rib and half-an-inch of the eighth. The entire of the innominata formed one vast aneurism the size of an orange, on whose anterior surface was found

an ulcerated opening large enough to admit an egg; the sternum had been so much absorbed that it broke transversely on being raised.

No. 4. Mr. FEARN'S *Case*, *Lancet*, 1836, page 129.—A female, aged 28, soon after a violent fit of coughing, felt a throbbing swelling above the sternum; on her admission to the Derby Infirmary, a rounded pulsating tumour was seen immediately above the sternum, bounded laterally by the trachea and the tracheal margin of the sterno-mastoid, evidently making pressure on the trachea near its bifurcation, as evinced by loud wheezing, frequent cough and difficulty of breathing. A loud *bruit de soufflet* was heard in the supra-clavicular space, and a less distinct *bruit* along the course of the common carotid. The *bruit* in the subclavian artery was rendered louder by stopping the passage of blood through the carotid; but when the circulation through the subclavian was arrested, the *bruit* in the carotid ceased. The tumour itself emitted sounds similar to and synchronous with those of the heart. The pulse in the right wrist was very indistinct; that in the left being of the natural strength and frequency. Pressure on the carotid rendered her breathing in a marked degree more free; the same experiment applied to the subclavian did not alter the respiration in the least; but on another occasion, pressure on the subclavian increased her difficulty of breathing. When both vessels were compressed at the same time, the relief was much about the same as experienced when the carotid alone was pressed upon. Mr. Fearn, therefore, selected the carotid for operation, and put a ligature round it, August 30th. A month after: the patient sleeps well; walks out every day; her difficulty of breathing is entirely removed; the tumour still pulsates distinctly, but pressure upon it does not give rise to dyspnoea or inconvenience of any kind; she returned home at her own request.

No. 5. Mr. MAXWELL'S *Case*, *Lancet*, 1841, page 594.—A compositor, aged 41, a few days after lifting a considerable weight, felt stiffness and pressure at the upper part of the chest. Mr. Maxwell, on examining him, perceived a slight swelling above the sternum, pulsating strongly; no cough; breathing free. The author says: "I then saw it was an aneurism of the arteria innominata;" but as an hospital surgeon in consultation stated it as his belief, that the disease extended to the arch of the aorta, medical treatment was alone had recourse to; the patient sank gradually, and died 3rd July, 1841, not from the bursting of the aneurism, but from exhaustion. *Post mortem*.—An aneurismal sac, the size of a large lemon, arose from the innominata, and formed close adhesion to the sternum. The orifice from the artery into the sac was three-quarters of an inch in length and a quarter in width. Its margins were rounded as if it was a natural opening. The aorta, heart, and other viscera were healthy, with the exception of some serum effused into the pleura and pericardium, as the result of great debility.

No. 6. Dr. WHITING'S *Case*, *Edinburgh Medical and Surgical Journal*, vol. xvii. page 81.—A man, forty years of age, whose general health



had been good, about three years previously to his death laboured under constant difficulty of breathing, which was much increased by all muscular exertions. He was troubled with a harsh, crowing cough, and expectorated much mucus, sometimes streaked with blood. To these symptoms were added, difficulty in swallowing solid food, and intense darting pain extending from the front of the ear along the right side of face and head; feels faint if he sits up for more than fifteen minutes. A short time before death the pulse at the right wrist was found intermitting; the left was not examined. He was subject to frequent attacks of catarrh, which invariably aggravated his sufferings; the strongest muscular efforts being often necessary to carry on respiration. At last, nature seemed to be exhausted in the effort to maintain the action of the lungs, and he died with catarrhal symptoms.—*Post mortem*.—The muscles of the chest and abdomen were unusually large and florid; the intercostals being particularly so; the bronchi were filled with mucus, and their mucous membranes slightly inflamed. An aneurism of the innominata lay behind the upper extremity of the sternum, and a little to its right side; perfect union had taken place between the sac and the trachea, the cartilages of which had been absorbed, and a smooth, red, oval tumour appeared within the tube, diminishing its caliber by more than half. (This paper is illustrated by two well-executed drawings, showing the anterior and posterior view of the tumour.)

No. 7. Dr. AUCHINCLOSS' Case, *Edinburgh Medical and Surgical Journal*, vol. iv. page 338.—A plumber, aged 64, had been in the habit of carrying heavy loads of lead on his shoulders. Immediately behind the sterno-clavicular articulation was a strongly pulsating tumour, somewhat larger than a hen's egg; extending in the course of the carotid and subclavian arteries to the inner edge of the scaleni; there was no pulsation in the subclavian beyond the acromial side of these muscles, in the axilla, nor anywhere down the right arm; there being numbness and frequent shooting pains in this limb. Frequent dry, tickling cough, hoarseness of voice, and dyspnoea prevented sound sleep. In April, 1833, he became affected with pain in the right shoulder, which he considered as rheumatic, and about the same time a tumour, the size of a Spanish nut, appeared above the clavicle, near to the sterno-clavicular articulation. In October he fell from a scaffold, and from that period the tumour increased in size, and the pain in intensity, until the beginning of June, 1834, when it was fully one-half larger than a child's head at birth, occupied the entire of the right side of the neck, from the clavicle and sternum to the lower margin of the jaw, had pushed the larynx and trachea nearly two inches to the left side, and finally became conical, with three nipple-like projections on its surface. He died on the 20th June, while raising himself to expectorate. Almost immediately after death, the aneurismal swelling began to subside, and in less than an hour the cyst was empty, presenting a great hollow depression, with thickening around its circumference, particularly at the lower part. *Post mortem*.—The sterno-mastoid was very

much stretched, pushed to the right side, and partly spread over that portion of the circumference of the tumour; the aneurism was found to engage the upper two-thirds of the innominata, the whole length of the common carotid to its bifurcation, and the subclavian to the inner edge of the scaleni. The dilatation involved the whole circumference of the carotid and subclavian, while the tumour on the innominata engaged only the anterior half of its circumference. The posterior aspect of the aneurism was close to the spine, and had pressed the larynx and trachea fully two inches to the left side; the posterior surface of the upper end of the sternum and inner half of the clavicle was partly absorbed, with destruction of the corresponding part of the cyst anteriorly; in this situation there was a considerable deposit of laminated coagulum. The subclavian was obliterated to an extent equal to the breadth of the scaleni, and so completely incorporated with these parts as to form apparently one structure. The innominata, beyond the seat of the disease, as also the aorta, was greatly enlarged. The upper lobe of the right lung was adherent to the lower and posterior part of the innominata. Considerable effusion existed on both sides of the chest; the bronchi contained much puriform mucus, and their inner lining was very red. The immediate subsidence of the aneurismal swelling after death, which was supposed to be caused by rupture having occurred internally, is to be explained, by the fluid contents of the sac receding towards the aorta, and passing readily into the large vessels of the chest and abdomen. The severe hemicranial pain, which he said was the most distressing symptom, is accounted for by the overstretching of the sterno-mastoid muscle, and the consequent pressure made on the spinal accessory and descending branches of the portio dura.

No. 8. Dr. HENDERSON's *Case, Monthly Journal of Medical Science*, 1843, page 453.—A woman, aged 59, suffered from palpitations for eight years; a violent attack of vomiting rendered them much worse, and she felt at the time as if something had given way within her chest; since then she complained of pain in the cardiac region, and great difficulty of breathing. Five months before, she was seized with a paroxysm of cough, which returned at intervals up to the time she was seen; it had been since the cough came on, that she noticed a swelling below the sternal end of the right clavicle. On admission to the Royal Infirmary of Edinburgh, a pulsating tumour was seen, commencing immediately above the cartilage of the third right rib, extending two inches above the sternal end of the right clavicle, and outwards to an inch and a quarter from the right sterno-clavicular articulation. Dulness on percussion all over the region occupied by the tumour. Above the clavicle a very obscure murmur was heard accompanying the diastole of the tumour, below the end of the right clavicle, a feeble, musical cooing sound began to accompany the systole of the tumour, becoming more distinct towards the fourth left cartilage; the cooing character of the sound was only occasional, the second sound, near the fourth left cartilage, being for the most part a bellows murmur, and both these sounds became



feebler, the more the apex of the heart was approached. A lengthened interval was at times to be distinguished between the stroke of the heart and the radial pulses; this interval becoming longer as the action of the heart became quicker. Pulse rarely intermittent, but stronger in the right than in the left wrist. She died soon after, and the *post mortem* examination showed the heart to be dilated, especially the left ventricle; one of the aortic valves had become folded back, and allowed of regurgitation; the aorta was somewhat dilated, and the innominata transformed into an elongated sac, the size of a large pear, its communication with the aorta being of considerable size.

No. 9. Dr. CAMPBELL's *Case*, *Monthly Journal of Medical Science*, 1845, p. 45.—An intemperate soldier, aged 48, suffered for years from pains in his right shoulder, and right side of neck and head. A fortnight before he consulted Dr. Campbell, while splitting wood with the axe at full stretch above his head, he felt something give way in the lower part of the neck, attended with sudden gasping for a few seconds, and on putting his hand to the part he found a small pulsating tumour, which he would not have noticed but for its rapid growth. Dr. Campbell discovered a pulsating tumour lying transverse to the axis of the neck, appearing at the tracheal as well as at the external side of the sterno-mastoid muscle, and to be felt pulsating within the chest, as low as the cartilage of the second rib. Compressing the right carotid artery arrested pulsation in the tumour; pressure on the right subclavian produced the same effect, but in a less marked degree. The radials, subclavians, and carotids pulsated equally strong on both sides. The right subclavian space sounded dull, and over this region a double pulsation was heard, growing weaker as the heart was approached and accompanied by a very slight *bruit de soufflet*; but neither thrill nor *bruit* could be heard in the tumour above the clavicle. Aneurism of the innominata was diagnosed, and as compression on the carotid had the greatest effect in restraining the circulation through the tumour, it was determined to tie that vessel, which was accordingly done on 8th March. For some minutes after the ligature was tied the aneurismal swelling entirely disappeared; however, only a short time had elapsed before it returned, but to a less extent than before the operation. Severe pain in the right side of the head, and dilatation of the left pupil occurred immediately after the tightening of the ligature; cough and feverishness set in three hours afterwards, and a bleeding was used with advantage; and he went on well until the 23rd, when fever returned, with slight delirium; heart acting most violently; when blood was again taken, and he seemed relieved until the 27th; he was then seized with intense dyspnœa; his face became livid; pulse 150, very small, and two pulsating tumours were felt rising one on each side of the sternum. He died the same evening. *Post mortem*.—A tumour was found occupying the superior portion of the right side of the chest, and extending half-an-inch beyond the centre of the first bone of the sternum. The aneurism commenced at the root of the innominata, involving the entire of its anterior wall to within a quarter

of an inch from its bifurcation, and also the transverse portion of the arch, to where the left carotid was given off, its origin being slightly dilated. The sternal ends of the clavicle and of the first rib were denuded of their periosteum, and the first bone of the sternum was deeply hollowed out by the pressure of the sac. The remains of two small pouches arose from the large tumour, one anterior and the other posterior; the sacs of these aneurismal pouches were found empty and collapsed. The entire of the aorta, as low down as the diaphragm, was dilated and contained ossific deposit; the right carotid was nearly divided, and plugged by a firm coagulum for two inches below the ligature. The superior part of the right lung was condensed from the pressure of the tumour; the left lung in the first stage of pneumonia; the left ventricle hypertrophied; aortic valves healthy.

No. 10. Mr. LYON's *Case*, *Monthly Journal of Medical Science*, 1847, page 229.—A man, aged 43, suffered for the last six weeks from pain in the back of his neck and right shoulder; two weeks since there was observed some swelling at the lower part of the neck. A strongly pulsating tumour, the size of a small fist, occupied the neck, from the right side of the thyroid gland to the sternum, and extending laterally under the inferior portion of the sterno-clavicular muscles; pressure diminished the size of the sac, but it again expanded as soon as the pressure was removed. Pulsation of the carotids normal, that of the right subclavian and radial scarcely to be felt. No *bruit* at any part of the tumour; action of heart healthy; no dulness on percussion, or absence of respiration over any part of the chest. It was agreed in consultation, that the tumour depended on dilatation of the innominata, and Brasdor's operation was proposed; but the patient would not submit to it. Pressure was applied by means of a half-circle of steel-spring, with a button and screw over the vessel, and a plate for obtaining counter-pressure behind, sufficiently large to avoid the lateral part of the neck; he was directed to use the apparatus as often as possible, and firmly enough to interrupt pulsation in the temporal artery of the right side. Previously to applying this instrument, he had been twice bled, and was put on the use of digitalis and acetate of lead, with low diet, rest and purgatives; all these were continued, except the bleeding. On the 27th December, 1843 (being the twenty-fifth day after the use of compression), the tumour had diminished in size; it pulsated much less forcibly; was much firmer and undiminished by pressure; pains less troublesome; voice not so hoarse, and swallowing easier. Right subclavian pulse smaller than at the former examination; he uses the collar generally for an hour and a half at a time, and in all for about eight or nine hours in the twenty-four. January 4th, 1844: Health good; pains gone; voice and deglutition normal; pulse small and soft, 80; pulsation in the sac scarcely perceptible; right carotid patent; radial permeable, but its pulsations exceedingly weak. Suffers no inconvenience from the pressure of the instrument. December 24th: A cast was taken and compared with one that had been made just twelve



months before, when it was found that the tumour had diminished two-thirds in all directions.

July, 1845: Gets constantly drunk; is often very violent; all treatment now neglected; he died suddenly on the 26th July. *Post mortem*.—The aneurismal tumour, the size of a cocoa-nut, formed by the innominata (the aorta being very slightly involved) extended from the cricoid cartilage to the arch of the aorta; its parietes on the right side are as thin as writing paper, and in them is a rent an inch long, through which fatal hemorrhage had occurred into the right pleural cavity. Above, the tumour is closely attached to the sterno-clavicular articulation and filled with fibrine; the other parts of it contained soft coagulated blood; below, the sac is fused into the commencement of the arch, and the left carotid arises from its lower and anterior border. The right carotid and subclavian arteries are both pervious, arising from its upper and posterior part.

No. 11. Dr. WISHART's *Case*, *Monthly Journal of Medical Science*, 1848, p. 496.—A labourer, aged 40, stated he had lost his voice from cold. "On applying the fingers over the clavicles, a distinct murmur was perceived extending up the neck; over the superior part of the sternum a strong impulse, accompanied with a *bruit*, was felt, synchronous with the stroke of the heart." The pulse in the right wrist was barely perceptible. Together with these symptoms of aneurism, he had acute bronchitis, for which he was more immediately treated, and discharged from the Middlesex Hospital in the beginning of August, 1844. When seen by the author on the 17th August, 1844, his symptoms were, great dyspnoea, suffocating cough, inability to raise his voice above a whisper, moist râles over both sides of the chest, a strong impulse felt over the top of the sternum, and the pulse in the right wrist not perceptible. The treatment was directed towards the disease of the lungs; he was put on very low diet, and took small doses of acetate of lead daily for some weeks. Towards the end of this year, only a very slight impulse could be felt over the sternum. He had repeated attacks of hemoptysis connected with the state of his lungs, which were then in an advanced stage of phthisis; for a month before his death (which occurred on the 21st of February, 1845), no pulsation could be felt in either of the carotids; but for how long previously to that time it was absent, the author could not say.

*Post mortem*.—Both lungs full of tuberculous cavities; the aneurism involved the whole of the anterior of the innominata, and had been spontaneously cured, the innominata being entirely obliterated; the sac of the aneurism (larger than a duck's egg) was completely filled with compact fibrine, deposited layer on layer, so as to fill the interior to the level of the aorta. The orifice from the aorta into the innominata was as large as a crown-piece; the aorta was also somewhat expanded, and there existed an extensive deposit of atheromatous matter in its coats. Fibrine occupied a small extent of the interior of the aorta, so as completely to cover the orifice of the left carotid, which, together with the right carotid and subclavian, was

entirely blocked up; the left vertebral and subclavian arteries were somewhat enlarged. The right common carotid was slightly contracted and filled with fibrine for about four inches above the aneurism. The right subclavian and the branches of the thyroid axis, vertebral artery, &c., were pervious, and of their usual caliber. The tumour adhered firmly to the front and right side of the trachea, and had slightly diminished its size; the mucous membrane of this part of the air-tube was of a reddish brown colour; a few points, about the size of pins' heads, were raised, as if at one time the aneurism had a disposition to burst into the trachea. The pneumogastric nerve adhered closely to the sac in front, and was considerably stretched. (The preparation is in the Museum of the Medical Department of the Army, at Chatham.)

No. 12. Mr. Luke, Surgeon to the London Hospital, has kindly forwarded to me the following particulars of a case, treated by him in private practice:

A shoemaker, of short stature, between thirty and forty years of age, was supposed to be labouring under rheumatism of the right shoulder, and had been treated in conformity with that opinion. On examination, Mr. Luke found a pulsating tumour, as large as a moderately-sized orange, above the right sterno-clavicular articulation, which he immediately recognised to be aneurismal. Ten ounces of blood were taken from the arm, cold lotion applied to the swelling, and digitalis administered internally; the diet was also restricted, but not very rigidly. The bleedings were repeated; first at short, afterwards at longer intervals, the quantity drawn being each time gradually diminished, until not more than four or six ounces were taken; this being found sufficient to control the force of the circulation; the pulse was carefully watched, and the bleedings regulated by its strength, care being taken *never to carry it so far as to distress the patient, or induce a feeling of nausea*. This treatment extended over some months, the pulsations of the tumour, which even from the first began to diminish, eventually disappeared altogether, leaving merely a fulness of the part in their place. The patient survived (what Mr. Luke concluded to be a cure) for two years, and died from an attack of phrenitis. The preparation is in the London Hospital Museum, and shows the aneurismal sac, commencing from the innominata just before its division into the carotid and subclavian arteries, extending forwards and a little outwards, overlying the anterior scalenus muscle, and covered by the lower extremity of the sterno-mastoid. The right carotid artery is impervious, but the subclavian would admit blood to pass through it; the sac is laid open by incision, and its cavity is seen to be *completely* filled by a uniformly dense fibrinous mass, without any central space, containing soft coagulum; it is, therefore, permanently closed against any admission of blood from the arteries.

No. 13. Dr. HUGHES' Case, *London Medical Gazette*, 1838, page 205.—A man, aged 40, had suffered from cough for five years, and observed a pulsating tumour above the right sterno-clavicular arti-



culatation six months ago. When seen by Dr. Hughes, "he presented the general symptoms and physical signs of aneurism of the arteria innominata, together with consolidation of the upper lobe of the right lung, and a feeble heart." About a fortnight after, the tumour disappeared during the night, and could never again be discovered; at the same time dyspnœa increased, the expectoration become more abundant, and was for two or three days tinged with blood; dysphagia now for the first time appeared; still he lived for four months after the disappearance of the tumour.

*Post mortem*.—The upper lobe of the right lung, consolidated from old pneumonia, contained in its centre an irregular cavity, and a few scattered tubercles. From the right side of the innominata proceeded an aneurism, as large as a chesnut; from its left side, and partly from the arch of the aorta arose another aneurism, as large as a hen's egg, pressing upon, and having an ulcerated opening into the trachea. To the left of the left subclavian was a third aneurism, as large as a walnut; the ascending aorta was much enlarged and diseased; the right subclavian was also enlarged; the right carotid natural; the left carotid very small, and its mouth completely closed; the mouth of the left subclavian also had been recently, but entirely, closed by the pressure of the aneurism near it.

The three following cases were laid before the Royal Medical and Chirurgical Society by Mr. SHAW. *London Medical Gazette*, 1840, page 518:

No. 14. A sailor, aged 50, admitted under Dr. Budd, May 9th, 1839. When first seen, no tumour was apparent, but a pulsation was felt at the upper part of the sternum, and under the sternal end of the clavicle; still the hollow space below the clavicle, and the depression between the insertions of the sterno-mastoid were more filled than natural, and pain was complained of when these parts were pressed. The superficial veins in front of the neck, on the right side, were preternaturally dilated. The pulse could not be felt in the right arm, either above the elbow or at the wrist, while in the left arm it was strong, beating 76. The pulsation of the carotid and temporal arteries was equally strong on both sides; pain in the right side of the neck to some distance upwards, and numbness of the right arm; voice hoarse, and he was troubled with a dry, teasing cough; slight difficulty in swallowing. He stated that he had been ill for four months, and that the pain (where the pulsation was felt), together with the hoarseness, came on suddenly. Two months after his admission, the sternal end of the clavicle appeared pushed forwards, and in December a tumour rose above the clavicle, and also descended below it; that bone forming a depression in its centre; orthopnœa; voice as low as a whisper; right arm and hand œdematous, acute pain in them beside numbness. Later in the case, the œdema extended to both arms, neck, and face; he constantly repeated "that the pain in the right arm would drive him mad;" the tumour increased, the skin over it became red, and rupture exter-

nally was expected; he died January 22nd, 1840, exhausted from pain and dyspnœa.

*Post mortem*.—The tumour was eight inches in length, measured obliquely from its origin at the root of the innominata to within three inches of the acromial process of the clavicle; reaching four inches above the sternum, and extending as many inches below that bone; one lobe of the tumour descended into the chest, as low as the third rib; another pouch projected backwards, so as to press on the trachea. The clavicle was perfectly detached from the sternum, and moved freely in the centre of the tumour, surrounded by coagulated blood; a portion of the first rib and sternum were likewise absorbed. The innominata came off from the arch, of its normal size, and then immediately dilated into the aneurism; a small aneurism, large enough to contain a nutmeg, was formed in the arch immediately above and behind the orifice of the innominata; so that part of the parietes of that vessel formed the septum between the great aneurism and this smaller aortic one. The right carotid was normal, opening obliquely into the sac; the orifice of the right subclavian was completely obliterated, nothing but a slight depression marked its former position; it was impervious for half-an-inch from the sac, but when it reached the axilla, its caliber was of the usual dimensions. The vertebral artery, the thyroid axis, and internal mammary were impervious at the point where they were given off from the subclavian. The right axillary vein was found behind the tumour, diminished to the size of a crow-quill, it was seen to enter the walls of the sac, and to be gradually lost in their substance; no vestige of the right subclavian vein could be found to mark where it joined the right vena innominata; the jugular and brachiocephalic veins were also remarkably contracted; the left brachiocephalic vein encircled the fore-part of the tumour, and was so small as not to allow a No. 10 bougie to pass along it. The axillary plexus of nerves was involved in the walls of the tumour at its back part. The areolar tissue which surrounded the nerves had the appearance of being inflamed: it was infiltrated with serum, and even partly broken down, to form an abscess. The right par vagum was traced into, and lost in the walls of the sac; the recurrent nerve was flattened by, and involved in the parietes of the aneurism, but it was impossible to say whether these nerves preserved their continuity to their destinations.

No. 15.—A man, aged 33, admitted to the Middlesex Hospital, in March, 1838, under Dr. Watson's care; his countenance was remarkably turgid, and eyes projecting; veins of the ears, lips, and nose of a purplish colour; the jugulars unusually full: the superficial veins all over the chest and abdomen enlarged; but those on the right side were more tortuous than on the left. Independent of the fulness caused by the blood-vessels, there was a distinct tumid appearance in the neck, above both clavicles, produced (as was found upon dissection) by an enlargement of the lymphatic glands situated there.



The pulse at the wrist was considerably smaller and weaker on the right than the left side. No external tumour, having any pulsation, could be perceived, although the most careful examination was made. About the middle of the upper portion of the sternum the ear, at each systole of the heart, was distinctly jarred, though with less force than in the precordial region; but in the space intermediate between these two points, no similar jarring sensation was perceived; nevertheless, the heart could be heard beating at this part, accompanied by a slight bellows sound. Dr. Watson considered, that the jar communicated to the ear at the upper part of the sternum indicated the swelling out of an aneurismal pouch in that situation, when the sac was filled by the contraction of the heart. He died five months after admission, and for the last three or four days he suffered under the symptoms of acute pericarditis, by which he was carried off.

*Post mortem.*—The sac was the size of two fists laid together. It communicated with the arch of the aorta, by an opening which corresponded to the orifice of the innominata, enlarged to about twice its natural size. The internal jugular veins of both sides, near their junction, with the subclavian veins, were completely closed by adhesion of their coats. The subclavian veins were only obliterated at the point where they were joined by the jugulars. Both brachio-cephalic veins, besides having their canals closed at their commencement, were entirely obliterated where they unite to form the vena cava superior, and lost in the parietes of the sac. A part of the right thoracic duct, about three inches in length, was obstructed at its termination, and ended in the closed brachio-cephalic vein. The great thoracic duct had been injected in the abdomen previously to the dissection, and was traced along the posterior mediastinum as far as the tumour, where it became so much involved in the dense textures situated there, that it was lost sight of. In this extent, its appearance did not present any thing preternatural. The glands of the neck were so enlarged, that they occasioned a perceptible fulness in the lower part of the neck during life. The glands of the axilla, groin, and mesentery were also enlarged. A layer of reticulated lymph was found on the surface of the heart, and the pericardium contained a quantity of reddish brown fluid.

No. 16.—A man, aged 44, admitted to the Middlesex Hospital, September 1, 1851, under Dr. Wilson's care, stated that he had been ill for two months, but had not been entirely free from pain for the last thirteen years. While in hospital he suffered from dyspnœa, and he could only speak hoarsely in a whisper; there was also some difficulty in swallowing; veins of the face and neck turgid: the head, neck, and superior extremities became greatly œdematous, while the lower parts of the body were quite free from it. *Post mortem.*—The aneurism arose from the innominata midway between its origin and its bifurcation, and measured in its greatest length (which was in the direction upwards), very nearly five inches, and in its transverse about three inches and a half; it was filled to four-

fifths of its extent with concentric layers of fibrine, which gave to the whole tumour a hard and solid feel. It reached upwards along the trachea, so as to overlay the lower part of the thyroid gland; and had partly absorbed the right clavicle and the upper part of the sternum. The openings of the carotid and subclavian were not in the least enlarged, neither was the opening from the aorta into the innominata. The right subclavian, internal jugular, and brachio-cephalic veins were obstructed by fibrine; the latter vessel wound round the lower part of the tumour in front, and was diminished to the size of a crow-quill. Some fluid in the pericardium; heart healthy; ascending aorta very considerably dilated, and atheromatous deposit on it.

No. 17. Mr. KEY's Case, *London Medical Gazette*, 1844, page 334.—Mr. Key attempted to pass a ligature round the innominata, but had to desist on account of a tumour attached to that vessel. The patient died on the twenty-third day after. Dr. Hughes had given it as his opinion, that the innominata was engaged in the disease, while the other physicians considered the arch and the innominata to be healthy. *Post mortem*.—The tumour which prevented the completion of the operation was an aneurism of the upper part of the innominata, including the origin of the subclavian; the carotid being comparatively healthy. The sac, together with a mass of diseased glands, pressed on the right bronchus, and had by its pressure been the immediate occasion of the fatal termination.

No. 18. Mr. GREENHOW's Case, *London Medical Gazette*, 1851, vol. xviii. p. 726.—A sailor, middle-aged, admitted to the Newcastle Infirmary, presenting a pulsating tumour at the right side of the neck, each pulsation throwing the shoulder forwards, as if it formed part of the parietes of the tumour. The sounds of the heart were heard very distinctly in the tumour, and a deep, faint *soufflet* heard most audibly at the scapula. *Post mortem*.—The innominata was dilated and diseased at its origin from the aorta, as well as where it expanded into the immense aneurismal sac, which extended on the right side from near the ramus of the jaw down to the third rib. A cast of the tumour had been taken, which showed it to measure eleven inches from side to side, while it projected three inches from the neck. The clavicle and two superior ribs were completely corroded and divided into two parts.

No. 19. DR. STOKES' Case, *Dublin Medical Journal*, First Series, vol. v. p. 406.—A shoemaker, aged 34, muscular development, admitted into the Meath Hospital, December 29, labouring under cough, difficulty of breathing, with pain in the chest, head, and neck. The night after admission he was attacked with hemiplegia of the left side. He had in general enjoyed good health, although subject to attacks of shortness of breath (particularly after any effort), with numbness of the right arm. Left side almost totally deprived of sensation and motion, while the mouth was drawn to the right side, and the tongue protruded to the left. Complains of violent pain in the right side and back part of the head and neck; difficulty of swallowing; cough



of a laryngeal character, with pain in the chest. Pulse 84, full in the left wrist, but exceedingly indistinct in the right, nor could any pulsation be detected in the brachial or axillary artery on that side. Decided dulness at the sternal extremity of the right clavicle. Respiration in the left lung intensely puerile, but exceedingly feeble in the right. On applying the stethoscope to the sternal extremity of the right clavicle a very loud double pulsation was discovered, with a strong impulse, but diminishing in intensity as the heart was approached; the sounds and impulse of which were natural. No *bruit de soufflet* could be detected in any part of the chest. On pressing the fingers behind the right clavicle, a small pulsating tumour could be felt in the direction of the arteria innominata. On the 25th January the tumour extended about an inch above the clavicle, was bounded internally by the mesial line, and externally by the posterior border of the sterno-mastoid; yet the dysphagia had diminished, notwithstanding the increase in size of the tumour. The superficial veins of the head and neck, particularly on the right side were greatly engorged. The size of the sac increasing, the right side, of the face, as well as the paralytic arm, became œdematous, while the right arm and lower extremities continued free from œdema; the trachea was pushed far to the left side, so that the larynx corresponded to a line drawn from the middle third of the left clavicle: intense bronchitis in the left lung. *Post mortem*.—An abscess, containing about an ounce of purulent fluid, was found in the middle of the right hemisphere of the brain. The size of the external tumour had much diminished; the larynx, trachea, and œsophagus, which, previously to death, were nearly in a line with the middle third of the left clavicle, were now more in a line with its sternal extremity. The aneurism was of the arteria innominata, and occupied the entire of the anterior wall of the vessel; it arose at first narrow (two inches in circumference), then increased to the bulk of a large cocoa-nut. The right side of the trachea was so flattened as almost to prevent the passage of air; the right carotid and jugular vein, on the posterior surface of the sac, were flattened and obliterated; the right and left venæ innominatæ were flattened and completely obstructed on the anterior surface of the tumour. The left carotid and subclavian arteries were unaffected; but the right subclavian was pressed so flat at its immediate origin that no blood could have passed from the innominata, though there appeared to have been a reflex current by anastomosis, as the artery was gaping immediately after its origin, and quite healthy; the aorta was found somewhat dilated and its coats thickened; the vagus nerve was also flattened. The apex of the lung was much compressed.

No. 20. Dr. STOKES' *Second Case*, *Dublin Medical Journal*, First Series, vol. xv. page 303.—In the case from which the preparation (which was laid before the Dublin Pathological Society) was taken, there had not been any dislocation of the clavicle; an aneurism of the arteria innominata had displaced the trachea, and folded it upon itself. The voice was of quite a different character from that heard

in true laryngeal disease; its tone being scarcely the same for two days, varying from the deepest bass to a shrill treble, or becoming almost extinct.

No. 21. Dr. HUTTON's Case, *Dublin Medical Journal*, First Series, vol. xxv. page 499.—A man, aged 47, enjoyed good health up to March, 1841, when he was attacked by pain in the right shoulder and clavicle, which gradually extended up that side of the neck to the ear and head; a dry cough began in June, to which succeeded difficulty of swallowing. In November his strength failed, and there was perceived a small pulsating tumour under the sterno-mastoid muscle; on his admission to the Richmond Hospital, in April, 1842, the tumour was situated a little to the outside of the sternal attachment of the sterno-mastoid; there was no *bruit de soufflet*; the right radial pulse was somewhat less than that at the opposite wrist; he suffered from bronchial cough and dyspnœa, but the dysphagia had become less as the tumour had risen above the sternum.

After his admission the pulse became smaller; the tumour increased in size, passing across the middle of the neck, its diameter across the neck being two inches, and from above downwards only an inch and a half. The right carotid was tied June 27; for several days the size of the tumour gradually diminished, and the dyspnœa became less, until, on the twenty-second day after the operation, when hemorrhage occurred from the wound, and this returned; on the thirty-eighth day he had rigors and convulsive motions resembling epilepsy; these recurred on the forty-first. On the following day the tumour had increased in size, pulsated more strongly, and the sputa were bloody. A sudden enlargement of the tumour occurred on the sixty-fifth day, accompanied by syncope. He died the seventy-sixth day from the operation.

*Post mortem.*—There had not been any attempt at union in the artery, it had ulcerated through where the ligature was applied; above this point there was atheromatous deposition in the vessel. The aneurismal tumour of the innominata (containing purulent matter and grumous blood) projected into the trachea, blood passing into the air-tube through a very small opening; the aorta was not dilated, but had some atheromatous points on it; the left vertebral artery came off from the arch of the aorta; the left subclavian was healthy. A large conical coagulum, of an inch long, filled the right carotid; a coagulum existed in the right subclavian, evidently older than that in the carotid.

No. 22. Mr. WICKHAM's Case, *Medico-Chirurgical Transactions*, vol. xxii. p. 405.—A sailor, aged 55, admitted to the Winchester Hospital, September 17, 1839. Six months ago he observed a swelling, the size of a hazel-nut, above the middle of the right clavicle, without pulsation or pain; it disappeared in about eight days, and re-appeared four weeks before his entering the hospital, presenting itself just above the sternal end of the clavicle. On his admission, the swelling had attained the size of a hen's egg; it seemed that the tumour extended over the carotid artery at its lower



part, and reached as high as the transit of the omohyoid muscle; it inclined also somewhat towards the subclavian artery, had all the characteristics of aneurism, and that of the innominata; his health was injured by continued pain and difficulty of breathing. Sir A. Cooper confirmed the diagnosis, that the disease was of the innominata, and sanctioned the tying of the carotid and subclavian. On the 25th September the carotid artery was tied immediately above the omohyoid muscle; the pulsation in the tumour continued, but with less force; the trachea was almost immediately relieved from pressure by the reduced size of the tumour, the troublesome cough and dyspnœa being thereby considerably lessened. Before he submitted to the second operation his appearance was very wretched, difficulty of respiration extreme, cough very frequent, deglutition much impeded, and the tumour more than double its original size. The subclavian was tied December 3rd, the ligature came away on the 25th; he left the hospital on the 5th February; hemorrhage occurred on the 15th of the same month, and death from another bleeding on the 16th.

*Post mortem*.—Heart large, and loaded with fat. Pulmonary artery and superior cava greatly enlarged, the entire of the thoracic aorta greatly dilated; nearly half of the innominata occupied by the origin of the aneurism; clavicle and sternum partly absorbed, and the former dislocated; right subclavian artery obliterated from the clavicle to the first rib; right carotid obliterated from just above the upper edge of the omohyoid. The aneurismal sac reached as high as the upper part of the thyroid cartilage, and had burst upon its left side, though it projected most upon the right.

No. 23. Mr. LAWRENCE's *Case, Medico-Chirurgical Transactions*, 1815, vol. vi. p. 227.—A woman, under 20, admitted to St. Bartholomew's Hospital, having been a fortnight ill, her only complaint being, a great difficulty of drawing air into the chest, amounting to a sense of suffocation, coming on in paroxysms, in the intervals of which she was free from all complaint. She died asphyxiated on the night after her admission.

*Post mortem*.—An aneurism of the innominata was found situated behind the first bone of the sternum, and pressing on the trachea so as to render it convex on its inner surface, but diminishing its caliber in a very slight degree. All the other organs were healthy.

No. 24. BURNS' *Surgical Anatomy of the Head and Neck*, p. 62.—An officer, who had seen much laborious service (having risen from the ranks), complained of numbness of the left arm, and an unpleasant sensation in his head; he was suddenly seized with acute pain over the first rib on the right side, and a tumour was found beneath the clavicular portion of the sterno-mastoid muscle, but nearer the acromion than the muscle; it pulsated strongly: the right radial pulse was weaker than the left, the right common carotid was also feebler than the left. In December, 1809 (two months after the above report), the tumour was much flattened; a peculiar thrilling

sensation was felt along the subclavian, vertebral, and common carotid arteries; frequent paroxysms of pain along the right side of the head, and constant numbness of the left hand. Towards the end of January, 1810, the right hand became slightly œdematous, and slowly lost power, assuming a permanently purplish colour. Aneurism of the subclavian was diagnosed. On the 22nd March the tumour suddenly increased greatly in size, extending laterally outwards, the clavicle was forced away from the sternum; there was no actual difficulty in breathing, but the patient said he "was short-winded;" voice becoming gradually impaired; the tumour still increasing in size, particularly towards the left side; he began to suffer from the dysphagia; voice raucous; pains extended to the left shoulder; and on the 10th October (four days before his death), his face was œdematous, streaked with purple veins, and lower limbs anasarcous; voice lowered to a whisper; still, difficulty of breathing and want of sleep were the chief subjects of his complaints, together with a hollow cough.

*Post mortem*.—The aneurism arose from the aorta, including a considerable part of the innominata, having in its ascent pushed the descending vena cava to the right, and the trachea to the left, pressing the right subclavian and the carotid against the spine. The trachea was so much displaced that the left carotid slanted across its front to reach the side of the neck. Left ventricle hypertrophied, aortic valves ossified. The arch of the aorta was dilated, and the œsophagus pushed completely from behind the trachea. (From the two plates that accompany this case it was evidently a good example of aneurism of the innominata).

No. 25. Mr. PATTISON'S Case, BURNS' *Surgical Anatomy of the Head and Neck*, page 427. (This case forms the first note in the Appendix.)—Mr. J. M'C., enjoying excellent health up to the autumn of 1816, when he was attacked with what his medical attendants considered as rheumatic pains in the lower part of the neck, which was repeatedly examined without any thing being discovered, and the opinion of the rheumatic nature of the pains was held up to his death. Having gone to bed in his usual state of health, he was found next morning insensible from an apoplectic seizure; he rallied by the evening of the same day, and conversed with his friends, but coma soon returned. *Post mortem*.—General and very great turgescence was the only morbid appearance found on examining the brain. The aneurism of the innominata pressed against the inferior surface of the sternum so as to render it carious. The left vena innominata was contracted, filled with lymph, and its cavity completely obliterated where it crossed the tumour, which was four inches in diameter by three in length, completely concealing the trachea and gullet. The superior and inferior thyroid veins were enlarged and distended with blood, through them the venous blood from the left arm and left side of the head and neck appeared to be conveyed to the right auricle; though this tumour, situated immediately in front of the trachea and



gullet, had so compressed the sternum as to render it carious, and had obliterated the transverse vein, still, neither dyspnœa nor dysphagia had ever been complained of.

No. 26. Mr. BAYFORD's Case, *Medical Observations and Inquiries for 1769*, page 14.—The symptoms that are briefly mentioned in the report of this case refer to an aneurism of the abdominal aorta, which was found, on the *post mortem* examination, to have ruptured into the cavity of the abdomen, and “at the upper part of the thorax a small aneurismal tumour was formed by a dilatation of the common trunk of the right subclavian and carotid arteries.” (This paper is accompanied by an engraving of the morbid appearances.)

No. 27. Dr. MOTT's Case, *American Journal of Medical Science*, 1830, February.—A man, aged 51, presented a pulsating tumour above the sternum, under the insertion of the right sterno-mastoid muscle, and extending within the chest as low as the second rib; pressure on the tumour almost completely interrupted his respiration; the least exercise had the same effect, and even when at rest his breathing had a wheezing character; he complained of pain when the tumour was pressed; œdema and numbness of the right arm; no pulsations could be felt in the right radial artery, and the right carotid pulsated much feebler than the left; on applying the stethoscope a *bruit de soufflet* was heard over the tumour. The primitive carotid was tied September 20, 1819; the second day after operation, the right radial artery could be distinctly felt pulsating, but it was totally absent in the same vessel twenty-four days after. *Post mortem*.—Aneurism of the innominata engaging the root of the carotid and subclavian arteries; clavicle partly dislocated and absorbed. Death had been caused by the pressure of the sac on the trachea, this tube having been found quite flattened.

No. 28. Dr. MORISSON's Case, *American Journal of Medical Science*, 1837, February.—A Spaniard, aged 42, had been confined to bed for nine months with pain in the cardiac region; dyspnœa increased by walking; rheumatic pains of the right shoulder, and in the muscles of the neck on the same side. A large pulsating tumour extended from within the chest upwards, and obliquely outwards, behind the sternal attachment of the right sterno-mastoid muscle. The tumour did not diminish perceptibly when pressure was made on the carotid above it, but the pulse at the right wrist became fuller and stronger; when pressure was made on the right subclavian, the tumour pulsated more strongly, as likewise did the temporal and facial arteries of the right side. From these phenomena it was concluded that the aneurism was of the root of the right carotid and innominata. The carotid was tied November 5, 1832. The pulsations of the tumour (which were most violent for seven days after the operation) became weaker, its size diminished, and his health was re-established; he died suddenly twenty months after the operation. *Post mortem*.—Nothing in the chest to account for death; the aneurism was of the innominata and root of the carotid; it had not ruptured;

the arch of the aorta was dilated and had calcareous deposit on it; head and abdomen not examined.

No. 29. M. GENEST's *Case*, *Archives Générales de Médecine*, vol. xxvi. 1831, page 205.—A Portuguese under-officer, aged 44, admitted into the Hôtel Dieu, March 31, 1831. Refers the origin of his illness to a violent effort made with the right side of his body, in an attempt to move a piece of cannon. This occurred two years before his admission; almost immediately after, he found a difficulty in swallowing, and six weeks had scarcely elapsed before the right arm became paralysed. Six months after this violent exertion, a tumour appeared in the space between the trapezius and sterno-mastoid muscles; on admission, a tumour extended from the right clavicle just to the chin, from which a deep furrow separated it; it pulsated synchronously with the pulse, and was as large as an adult's head; his answers were short, and he was obliged to stop suddenly in his conversation if he became excited. A tumour compressed the trachea; respiration was accompanied by a hissing sound and paroxysms of dyspnœa. The right pulse was the weakest, seeming to indicate that the principal vessel of the limb was implicated; a gangrenous eschar formed at the apex of the tumour, and he died from one burst of hemorrhage. *Post mortem*.—An aneurismal tumour of the innominata adhered closely to the first rib, to the right clavicle, to the upper part of the sternum, to the sternal extremity of the left clavicle, and to part of the first rib on the left side. The carotid and subclavian were not in the least dilated; the common carotid was behind the tumour and intact; the subclavian did not appear compressed. The trachea, larynx, and œsophagus all very much compressed from the right side; the wall of the sac was deficient anteriorly; the sterno-mastoid muscle was in contact with the blood of the tumour, and formed its anterior wall.

No. 30. M. MICHON's *Case*, *Gazette des Hôpitaux*, 1847, p. 527.—Patient could give no account of when the disease began; when seen for the first time in February, he could not sit up in bed without danger of suffocation. Above the sternum, and a little to the right of the medial line of the sterno-mastoid, a deep tumour was felt pulsating feebly. Right radial pulse was very small as compared to that in the left arm. Respiration and voice short; now and again, without any perceptible cause, a sudden access of suffocation comes on. In the July following he could sit up in bed, even walk slowly in the ward, and it seemed as if the tumour had in part disappeared, but the larynx was pushed over to the left side. A *bruit de soufflet*, extending into the right carotid, was heard on applying the ear to the chest. Later in the case, respiration could scarcely be heard: skin cold, lips violet, veins of the neck swollen; voice almost inaudible, as if there was some obstacle in the throat; slight cough, but neither hemiplegia, dysphagia, or hemoptysis. Percussion gave a much less clear sound on the right than on the left side, on a level with the sterno-clavicular articulation.



*Post mortem*.—A tumour, the size of a fist, was developed at the root of the brachio-cephalic trunk (the innominata). The recurrent nerve on the right side, in passing under the tumour, was thereby compressed, and divided into many branches, which were applied closely to the sac. The trachea was pushed to the left side without being sensibly flattened. The bronchi were not in contact with the tumour.

No. 31. M. BRESCHET'S Case, *Mémoires de l'Académie de Médecine de Paris*, vol. iii. p. 129.—Patient, aged 40, admitted to the Hôtel Dieu, May 28, 1829; had been a soldier for ten years, and presented on the right side an aneurismal tumour of the subclavian, extending from the brachio-cephalic trunk to below the clavicle; the right arm was not wasted, still he complained of its being weak, and occasionally swelling. Dupuytren tied the axillary artery; death occurred from repeated hemorrhages.

*Post mortem*.—The innominata presented an enormous dilatation in all its circumference; the aorta, just to its passage between the pillars of the diaphragm, was considerably enlarged; an aneurismal tumour extended from the division of the innominata to a little above the point where the ligature had been applied.

No. 32. M. BOINET'S Case, *Bulletin de la Société Anatomique de Paris*, for 1836, p. 47.—A chandler, aged 57, admitted to the Hôpital Necker, May, 1834. The only position he could remain in for any length of time was sitting up in bed, arms carried forwards, head flexed on the chest; the respiration was difficult, expiration sibilant, and voice feeble. A tumour, pulsating synchronously with the pulse, extends from the superior border of the sixth rib to the thyroid cartilage, and transversely outwards to the middle of the right clavicle, the sternal end of this bone being dislocated; veins on and about the tumour dilated; trachea was compressed and dislocated to the left side, so as to be on a line with the left sterno-clavicular articulation. Right carotid pulsates more feebly than the left; pulses at the wrist equal; pain in the head; he gets violent fits of coughing, during which the face becomes violet-coloured, and he loses consciousness. Percussion gives a clear sound on both sides of the chest, except at the superior part; a *bruit de soufflet* is heard over the tumour; no abnormal sound on the left side of the chest: on the right slight œgophony, as high as the first dorsal vertebra. M. Langier (under whose care this patient was) diagnosed aneurism of the right subclavian, probably extending to the innominata, and on the 12th June, the axillary artery was tied. Hemorrhage began on the 17th; the volume of the tumour diminished a third, and the trachea returned to the mesial line, thus resuming its natural position, while the cutaneous veins became less apparent, the cough becoming less frequent; still the hemorrhage continued; the size of the tumour diminishing daily, until, on the 11th July, it was but half its original bulk; as the size of the tumour diminished, the respiration became more and more difficult, and on the 12th July he died asphyxiated.

*Post mortem*.—Upper part of sternum, end of clavicle, and the three superior ribs on the right side, were eroded and in part destroyed. The tumour springing from the innominata was as large as a child's head, it compressed the carotid, trachea, bronchi, and œsophagus; the second and third dorsal vertebræ were denuded and in part destroyed; the sac was deficient where the tumour met the vertebræ, the clots being in direct contact with these bones; numerous strong adhesions existed, and prevented all effusion into the pleural cavities. The œsophagus was perforated opposite where the vertebræ were corroded; an opening also existed in the larynx, just below the vocal chords. Half-an-inch below the cricoid cartilage, the trachea was so much compressed as to have become triangular, the apex being posteriorly; the right carotid and subclavian had their origins on the surface of the tumour. The right pulmonary artery and veins were compressed; heart hypertrophied, aortic valves insufficient.

No. 33. M. MAZET's Case, *Bulletin de la Société Anatomique de Paris*, 1838, page 49.—A woman, aged 47, admitted to the Hôtel Dieu, May 1, 1838, complaining of dyspnœa and cough with expectoration; mucous and sonorous râles were heard over the chest; heart pulsating with force, but without abnormal sound; the *right* pulse could not be felt even as high as the brachial, and in continuing the search for pulsation higher up, a tumour was found behind the sterno-mastoid muscle, extending behind the sternum into the chest, pulsating synchronously with the pulse, and not painful on pressure. A sound analogous to the first sound of the heart was heard under the right clavicle; no pulsation in the right common carotid; aneurism, probably, of the brachio-cephalic artery was diagnosed; the tumour did not appear to have increased in size since its appearance four years before. She died May 13.

*Post mortem*.—Softened tubercles in both lungs; a pyriform tumour, four inches long by eight inches in circumference at its largest point, occupied the place of the innominata; the subclavian vein in front of this tumour had been thereby made to form an arch, the concavity looking upwards; the trachea was displaced a little to the left, besides being compressed to the extent of about an inch; the tumour adhered to the first rib and to its sterno-clavicular articulation; the right carotid and subclavian arose from its posterior surface; the right common carotid was impermeable for two and a half inches from the sac; the subclavian was only obstructed at its origin; no dilatation of the aorta.

No. 34. M. L'HOMMEAU's Case, *Bulletin de la Société Anatomique*, 1840, p. 212.—A man, aged 40, complained of intense pain in the right side of his neck and corresponding arm, seven weeks after he had fallen heavily from his horse. Having suffered from dyspnœa during the night, he applied for relief, and on examination, sonorous and sibilant râles were heard all over the chest. The day after his admission there suddenly appeared in the neck a round, pulsating tumour, which caused a painful sensation in the course of the œso-



phagus. On a level with the top of the sternum double pulsation was heard; left arm cold and blue; no pulsation in the left radial or humeral arteries. The state of the right arm and right radial pulse was normal. M. le Docteur Berard diagnosed an old aneurismal dilatation of the transverse aorta, or of one of the trunks originating from it; rupture of the old sac, without hemorrhage, causing the sudden appearance of the tumour, and the state of the left arm caused by a clot in the subclavian artery. Death occurred during a paroxysm of dyspnœa.

*Post mortem*.—Dilatation of the brachio-cephalic trunk, the left subclavian obliterated by a clot of recent origin. The relations of the tumour rendered an exact explanation of the pain in the course of the œsophagus, of the dyspnœa, and of the sibilant character of the respiration. [This is all that is said regarding the position of the tumour.] The left common carotid arose from the arch by two distinct branches united by a band of areolar tissue and soon forming one trunk.

No. 35. M. CHAPELLE'S Case, *Bulletin de la Société Anatomique*, 1848, p. 291.—A carpenter, aged 46 (a drunkard), complained of pain in the right shoulder in July, 1843, followed in November by the appearance of a tumour. When admitted to the Hôpital St. Antoine, under M. Malgaigne, the tumour, as large as a hen's egg, pulsated in all its parts, having its base covered by the sternum and the internal border of the right clavicle. M. Malgaigne intended tying the subclavian and carotid arteries, but only tied the latter vessel, the patient being too much exhausted to justify a second operation, as the carotid, being far to the external border of the sternomastoid, had rendered the operation very tedious; tumour diminished very much in size, and he left the hospital much relieved, but against M. Malgaigne's advice. On the 30th July he was admitted to the Hôpital St. Louis, at which time the tumour was larger than before the first operation; a prolonged impulse was heard over the tumour, followed by a period of repose, to which succeeded a *bruit*, clear, short, and replaced immediately by the long impulsive sound; the length of the impulsive sound, and the absence of any pause after the second sound, prevented the movement and *bruit* of the aneurism from being synchronous with the heart sounds. The circulation was re-established at the right side of the head; right pulse smaller than the left; he spoke a little hoarse, had some slight difficulty in swallowing; pain in the right shoulder and arm, at times very intense; slept on the left side, the pain and difficulty of breathing being increased in any other position, and he complained of a pricking sensation in his eyes. M. Malgaigne tied the subclavian on the 13th October, just seven months after the first operation. On the 5th of November dyspnœa re-appeared; on the following day the dyspnœa had increased in intensity, though the tumour was less apparent; he died asphyxiated on the following day.

*Post mortem*.—The sac occupied the termination of the innominata, engaging the primitive carotid and subclavian. The carotid

was completely obliterated on a level with the superior part of the larynx; the subclavian was pervious, except where the ligature had been applied. The innominata was an inch and three-quarters in diameter, and the walls of the part that formed the sac were much thickened. The upper part of the sternum, first rib, and clavicle, were eroded from the pressure of the sac.

No. 36. Sir D. DICKSON's *Case*, *Revue Médicale*, vol. ii., for 1837, p. 111.—A sailor, aged 40, admitted to the Marine Hospital, Plymouth, in April, 1835, for continual cough, with viscid, sometimes muco-purulent expectoration, and a feeling of constriction, more than pain, at the upper part of the sternum. Pulse irregular, respiration laborious, with mucous and sonorous râles over the chest; he suffered paroxysms of dyspnœa, of an asthmatic character. Chronic bronchitis, with hypertrophy of the heart, was diagnosed; and at a later period there was thought to be a tumour compressing the trachea. He died asphyxiated, June, 1836.

*Post mortem*.—An aneurism, the size of an orange, engaging the entire of the innominata, had obliterated the left subclavian vein, and the blood could but with difficulty pass through the right subclavian vein, hence the distention of the vessels of the head and neck; the trachea was compressed, and adhered to the tumour; there was also general dilatation of the thoracic aorta. [I have searched in vain for any notice of this case in the English medical journals.]

No. 37. M. DUBRUEIL's *Case*, *Sur les Anévrysmes de la Portion Ascendante et de la Crosse de l'Aorte*, p. 90.—A man, aged 37, admitted to the Hôpital St. Eloi de Montpellier, the symptoms being, pain, intense and continued in the upper part of the chest, low down in the neck and in the right shoulder; respiration sibilant; frequent cough; voice weak and cavernous; right pulse scarcely to be felt; right humeral artery pulsating very feebly. A pulsating tumour existed above the right sterno-clavicular articulation, and extended across the neck to the sternal attachment of the left sterno-mastoid; a second tumour rose above that just described, as high as the fifth cervical vertebra; a *bruit de râpe* was heard over it; while an obscure *bruit de soufflet* was heard over the chest, there being no difficulty in distinguishing the pulsations of the tumour from those of the heart. Aneurism of the arch of the aorta and innominata was diagnosed. The tumour, as it increased in size, dislocated the clavicle, pushed the sternum forwards, rendered the dyspnœa more and more intense; blood was discharged by the mouth, and he died soon after.

*Post mortem*.—Remarkable flattening of the tumours; an aneurism arose from the superior and posterior of the transverse part of the arch, inclining to the right, resting on the trachea, into which it had burst. The innominata was dilated to double its normal size, its caliber was almost entirely obstructed by a mass of solid fibrine of a very ancient date, which scarcely allowed any blood to pass through it.

No. 38. M. DUBRUEIL's *Case*, *Sur les Anévrysmes de la Portion Ascendante et de la Crosse de l'Aorte*, p. 122.—A captain of artillery, aged



44, was attacked with pain in the upper part of the chest, for which he took warm baths; hæmoptysis appeared, and continued at intervals; attacks of dyspnœa became so urgent as to oblige him to enter the Hospital at Montpellier on the 6th August, 1836; bleeding relieved the intense dyspnœa but little, and he died suffocated; lesion of the vessels not being suspected, though the lungs were frequently examined.

*Post mortem*.—Interlobular emphysema: an aneurism of the brachio-cephalic trunk was found, as large as a turkey's egg, having perforated the trachea at three points; some spiculi of phosphate of lime had passed from the walls of the sac into the trachea, and raising the mucous membrane about two inches from the origin of the bronchi, appeared (when seen from the trachea), as raised reddish tumours under the mucous membrane.

[This case was reported to M. Dubrueil.]

No. 39. M. DUBRUEIL's Case, *Sur les Anévrysmes de la Portion Ascendante et de la Crosse de l'Aorte*, p. 129,—A man in the prime of life was seized suddenly with severe dyspnœa and violent convulsive cough, which he attributed to having a few moments before made a violent effort in raising a bag of corn; the dyspnœa continued, and he was obliged to leave his work. Six months after, a tumour, the size of a nut, was seen pulsating at the inner third of the right clavicle. The tumour had acquired an immense size, pressing outwards the lower half of the neck, and extending downwards into the chest, as low as the third rib; it passed transversely across the chest from the internal third of the right clavicle to the sternal insertion of the left sterno-mastoid; over the part of the tumour that was within the chest a *bruit de soufflet* was heard, so loud as to strike the ear, while over the portion that was external to the chest and above the clavicle a purring murmur existed, such as is heard in external aneurism. His respiration was loud and wheezing, voice raucous, the patient even aphonic at times; right arm infiltrated with serous effusion; right side of the face wasted; deglutition always painful and sometimes impossible; left pulse natural at 56; right thread-like. Pulsation can scarcely be felt in the right common carotid, and was absent in the temporal of that side; the fits of coughing, without expectoration, became more frequent and violent; the sac burst externally, and death was instantaneous. Aneurism of the innominata, connected with, and dependent upon aneurism of the transverse portion of the arch, had been diagnosed, but at the *post mortem* the arch was found *perfectly* healthy, though the entire of the innominata was engaged in the aneurism; rupture had occurred at the highest point; a coagulum rendered the right common carotid completely impermeable; the subclavian was also considerably diminished in size; not far from the cricoid cartilage the tumour rested on the trachea, thereby causing flattening and thinning of four of its rings.

No. 40. M. PLANQUE's Case, *Bibliothèque Choisie de Médecine*, 1759, vol. x. p. 276.—A soldier, aged 46, admitted to the Infirmary

of the Hôtel des Invalides, complaining of cough, with bloody expectoration and pain in the throat, these symptoms having existed for the past six weeks. A tumour was found at the anterior and inferior part of the neck, immediately above the sternum, pulsating regularly, and capable of being emptied, but immediately refilling on removing the pressure; he only noticed it since he was attacked with a cold six weeks ago; he discharged blood by the mouth on the third day after admission, and died.

*Post mortem*.—A pouch, one inch in diameter by two in length, was given off from the innominata, at its middle having the form of the tumour that appeared in the neck; hence, says the author, “the aneurism was not of the aorta, as I had considered it to be.”

No. 41. M. PIORRY’S *Case, Traité de Médecine Pratique*, vol. i. p. 299.—“In a patient whose right subclavian space was occupied by an aneurismal tumour, examination after death showed it to have been caused by an aneurism of the innominata, and that the sac was of the dimensions indicated by percussion made before death.”

At page 390, vol. x. of the *Journal de Médecine* par M. Sédillot, there is an account of an aneurism of the aorta that extended to the innominata. There is also reported, at page 306, vol. xi., *Recueil des Mémoires de Médecine, de Chirurgie, et de Pharmacie Militaires*, a case of extreme dilatation of the aorta, innominata, carotid, and subclavian arteries; but sufficient details are not given to secure for these cases even a pathological interest.

No. 42.—In the *Bolletino delle Scienze Mediche*, and in the *Journal des Connaissances Médico-Chirurgicales*, vol. ii., for 1844, page 78, it is mentioned, that M. Rossi tied the right subclavian and primitive carotid, and that *post mortem* examination showed the innominata to be the seat of an aneurism; the left carotid and right vertebral arteries were found obliterated; hence, for the six days that he lived, after the subclavian and carotid had been tied, the left vertebral was the only artery through which blood could pass to the brain.

No. 43. *Repertorium der gesammten deutschen Medizinisch-Chirurgisch Journalistik*, by Neumeister, for 1830, p. 119.—A man, aged 51, of good constitution, was sent to the hospital, for the disease above mentioned (aneurism of the innominata). The tumour was too extensive (beating with great violence) to admit of a ligature being applied, after Hunter’s method, between the sac and the heart; Brasdor and Wardrop’s operation being the only one applicable to this case, the carotid artery was tied; an hour after he complained of intense headach, and the tumour pulsated as violently as before. On the following day, June 14, the pulsations were not so strong, and the pain in the right shoulder and arm was much less. June 16th, partial loss of vision in the right eye, pain in the right ear, mind began to wander, paralysis of the left side of the body appeared, which increased on the next day, and death followed on the 18th.

*Post mortem*.—An aneurism of the innominata, the size of a man’s



fist, was found, which had rendered the right clavicle carious; the carotid was obstructed by a firm coagulum, for the extent of an inch and a half below where the ligature had been applied.

No. 44. DR. HAMPEIS' Case, *Medecinische Jahrbücher des Kaiserlich-Königlichen Oesterreichischen Staats*, January, 1845, p. 19.—A man, aged 62, observed a swelling rising between the second and third ribs, on the right side; it was not painful, and disappeared on pressure; it increased rapidly, and on his admission to hospital was five inches in diameter, by two in height; it spread over the sternum; the veins on the right side of the chest were varicose; feeling of cold extending down the right arm; burning pain in the throat; cough, with bloody expectoration; the entire mass pulsated strongly; heart's action irregular; he suffered from occasional fainting fits and difficulty in swallowing; the tumour was daily expected to burst externally; he died on the 22nd April.

*Post mortem*.—An enormous aneurism of the innominata was found, having by its pressure caused absorption of the upper part of the sternum at the right side; the superior ribs on the same side were in part absorbed.

No. 45. PROFESSOR DE RENZI'S Case, *Annali Universali di Medicina Omodei*, 1836, vol. lxxviii.—A carrier, aged 46, admitted to the Hospital for Incurables; addicted to the use of spirituous liquors; and had suffered from syphilitic bubo. In September, 1832, he was attacked with pain in the right clavicular region, an irritating cough, and loss of sensibility of the right arm; respiration became difficult, and the cough took on a convulsive character. Later in the case, he is reported to have complained of a vague pain in the throat, slight aphonia, difficulty in swallowing, and impossibility of lying on the back; left radial pulse beat very quick, while no pulsation could be felt in the right radial, brachial, or carotid arteries. As the disease progressed, pain extended to the left side and shoulder, followed by numbness of the corresponding arm; mucus accumulated in the trachea, which was expelled with so much difficulty as at times to threaten suffocation. The rhythm of the heart was not quite natural; the entire chest sounded dull on percussion; pectoriloquism was heard over the inferior part of the right lung, anteriorly; sibilant respiration in the lower part of the left, together with other phenomena, that led to the diagnosis of tubercular disease, with the formation of a cavity, and an affection of the heart. The absence of pulsation in the right radial, brachial, and carotid arteries led to the suspicion of disease in the great vessels; but it could not be stated positively, for want of the necessary signs.

*Post mortem*.—The lungs were full of miliary tubercles, and presented a cavity in the inferior lobe of the right lung. The aortic valves were a little thickened and indurated. An aneurismal tumour, the size of a small orange, arose from the innominata, and in part from the aorta; it was filled by a mass of very adherent fibrine, extending into the carotid. The sac lay to the right side of the trachea, and an inch above the division of the bronchi.

It is unnecessary to lengthen further this part of the subject by giving an account of the preparations of innominata aneurisms in British and Foreign museums; for, as the phenomena they produced during life are not recorded, their value is purely pathological. I must, therefore, refer those who take an interest in these inquiries to the catalogues of the museums, whose arrangements are so perfect as to remove all difficulties in the search; with this exception, the above will be, I trust, considered as forming a pretty complete history of this affection. I shall next proceed to consider the differential diagnosis of these aneurisms.

(*To be continued.*)

ART. VIII.—*On the Treatment of Fractures in the Vicinity of the Ankle Joint; with Observations on the Practice of Tenotomy, as facilitating Reduction of the broken Bones.* By RICHARD G. H. BUTCHER, F. R. C. S. I., Examiner on Anatomy and Physiology in the Royal College of Surgeons of Ireland, Surgeon to Mercer's Hospital, &c. &c.

THE writer of the able article, "Particular Fractures," in the *Cyclopædia of Practical Surgery*, edited by Costello, at page 390 thus expresses himself: "A frequent and serious set of accidents consists of different fractures of the two malleoli, or of the inner malleolus and of the fibula, close above the ankle joint. The tibia being sometimes luxated, and the mischief being complicated with laceration of the integuments, presents us with very formidable conditions, the whole train of whose consequences demands all the powers of surgery."

Being fully impressed with the truthfulness of this statement, I am induced to place on record the following cases, treated by a simple and most efficient method, preserving to the sufferer in every instance the integrity of the limb and its normal functions. From the great opportunities afforded in the hospital to which I am attached of observing every variety of



fracture (some hundreds being admitted yearly), I have selected the complicated class which forms the heading of this paper; I am also desirous of doing so because they have occurred within so short a period, and were subjected daily to the observation of a large class of students. I propose first to record the cases and their treatment, and then to make such observations as I think the subject demands, in reference to the operation of tenotomy for facilitating the reduction of the broken bones.

CASE I.—In the Dublin Medical Press for April, 1851, I have given in detail the outline of a remarkable case of fracture of the internal and external malleolus, with dislocation of the tibia forwards, or, according to Dupuytren, of the foot backwards, occurring in a large, muscular man, and treated on a particular plan, with the most favourable results; the normal functions of the joint being entirely preserved, the patient capable of walking long distances and prosecuting his ordinary business without the slightest interruption or impediment. In the case alluded to, the appearance of the limb, as it lay on the pillow, was very characteristic of the injury the patient sustained. The most striking features were, the fore-shortening of the foot, the lengthened heel, and the consequently increased arch of the tendo Achillis; at the same time the foot was abducted, or, in other words, its internal edge lay considerably lower than the external; there was a most marked depression about two inches above the tip of the external malleolus, and a remarkable prominence an inch above the lower margin of the internal malleolus. So sharp was this upper fragment that it threatened every moment to protrude through the strained and tightened integuments. Effusion had not as yet set in, owing to the collapse consequent upon a debauch and the reception of so severe an injury. Nothing then obscured the great deformity and the bold outlines which characterized the accident, as fracture of the fibula and of the internal malleolus, and dislocation of the tibia forwards.

On elevating the limb from the bed, the leg being bent on the thigh, the following solutions accounted for the deformity. The fibula was shattered two inches and a half from its lower edge, the pieces being very numerous and moveable; the internal malleolus was broken at its base, and as a sequence to the lateral support of the joint being lost, and, probably in some measure to the force being continued, the tibia readily glided over the convex surface of the astragalus, while the foot, and the lower fragments, the internal and external malleoli, drooped backwards; not only was the tibia considerably advanced, but its inner margin was abnormally in front of the outer edge, or, more briefly, it was slightly rotated outwards. The articulating extremity of the tibia greatly overhung the navicular bone, yet, strictly speaking, its anterior edge did not rest upon it, for the foot was pointed downwards by the action of the powerful extensor muscles acting on the heel. Thus the perfect dislocation of the tibia off the astragalus, as clearly indicated by manipulation, will account for the great fore-shortening of the foot, which fully amounted to an inch and a half. While an assistant flexed the leg upon the thigh, I was able without much difficulty, by traction on the foot, to lift it forward, together with the broken malleoli, into position, and then, by slightly inverting the foot, the lower fragment of the internal malleolus was brought up in apposition with its base, and the integuments, from being tense almost to bursting, were at once relaxed over the lower edge of the superior fragment; on removing the support for an instant, the extensor muscles, thrown into spasms, at once reproduced the deformity that stamped the accident. By a repetition of the above manœuvre co-aptation of the broken fragments was effected, and the limb placed in a fracture-box, the thigh slightly bent and the leg resting on the heel. The box was so constructed that it retained it in this position, for, while the thigh was supported on a gently inclined plane, the leg rested on a horizontal surface; the box was well padded, particularly beneath the heel;



splints, with lateral foot-supports, were slid up between the cushions and the sides of the box; each had a round hole bored in its lower extremity, which received the arms of the sole-piece; in addition to the lining pads of the splints for guarding against undue pressure, there were three used with the object of acting on the broken fragments and displaced parts: the first placed beneath the heel so as to press the foot and lower fragments well forwards; the second, somewhat in the form of a wedge, was placed along the inner side of the leg, the base of it resting about two inches above the fracture through the tibia; this tended to press the tibia outwards, while the third pad also triangular, was placed between the outer side of the foot, and the corresponding splint, the base at the toes; this inverted the foot, and most effectually acted in bringing up the internal malleolus to the upper fragment. The splints and pads being adjusted in this way, the anterior surface of the limb was raised exactly to a height with the sides of the fracture-box, so that, when the first roller was applied from below the knee around the fracture-box and leg, as far as the centre of its lower third, an equable pressure was maintained all along the anterior surface of the tibia, and by this means acted most efficiently in steadying the upper fragments, at the same time pressing them backwards; several layers of soft wadding were interposed to prevent any fretting of the integuments over the sharp spine of the tibia. The foot, as before mentioned, was kept well pressed forward by the increased number of pads under the heel, and fixed, *slightly* inverted, by a few turns of a roller, embracing the anterior part of the dorsum of the foot, side-splints, and foot-board. By this arrangement the limb lay in admirable position, all deformity entirely removed, with the parts corresponding to the site of fracture and ankle-joint freely exposed for local applications.

On the limb being done up in this way, the patient expressed himself as being relieved from all pain; a cold lotion was ordered to be kept to the part, and a full opiate was pre-

scribed. On the following morning great swelling and effusion were present, the collapse having passed away, and reaction set in. I was at once careful to ascertain that no undue pressure was exerted by the mechanical means employed, but nothing could be more satisfactory than their adjustment. His bowels were freed by medicine: relays of leeches were directed to be applied, six at once, and the part to be afterwards enveloped in a warm stupe, so as to solicit a constant drain of blood; four more in three hours; and warm stupes to be continued all night. Though the local abstraction of blood was here imperatively demanded, taking into consideration the intemperate habits of the man, I did not think it prudent to stop altogether his usual stimulants, particularly after the infliction of so severe an injury. On the fourth day the nervous system began to give evidence of participating acutely in the local affection; he had scarcely any sleep, and that obtained was not perfect or refreshing, as he was awoke at short intervals by a tendency to spasms in the voluntary muscles of the upper as well as the lower extremities; pulse very irritable and rapid; respirations unequal; tongue tremulous, and covered with a whitish pasty coating. The limb lay in admirable position, sufficient restraint being employed to prevent deformity and guard against displacement, so as at the same time not to obstruct the free circulation in the overloaded vessels. He was now put under the influence of opium, and kept so. On the sixth day from the receipt of the injury he was better in every respect; he slept all night; his pulse quiet; no spasmodic startings; tremulous motion of the tongue subsided; and the limb free from pain, and in good position. On the twenty-second day after the accident I applied Dupuytren's splint and wedge-shaped pad along the back of the leg. This acted exactly on the same principle as the treatment adopted from the very first, after the receipt of the accident. The base of the pad resting on the splint behind forced the foot forwards, whilst the little pad, placed in front of the lower end of the tibia, and retained by a



bandage, propelled backwards the articulating surface of the tibia. With the splint thus applied, after Dupuytren's directions, the limb was placed in the fracture-box, with side-splints as before, by which the foot was slightly inverted. On the 18th of April the union was quite firm; I therefore removed Dupuytren's apparatus; there was not the least fore-shortening of the foot, or displacement of any kind. I then put on a roller, side-splints, and foot-boards, as offering sufficient restraint; and on the 20th of the month he quitted the hospital, with the motions of the joint nearly perfect, and not the least trace of deformity.

This case, when admitted to the hospital, was looked upon as one of the most grave character; in the first place from the violence and injury inflicted on the part; and secondly, in having occurred in a broken-down constitution, and an habitual spirit-drinker: such a combination justified a guarded prognosis at least. In the management of it, I urged the advantages accruing from at once placing the limb in that position which it is to hold all through the treatment, and retaining it so. This axiom was well carried out in the case alluded to, and the advantages resulting from early co-aptation very apparent; the broken fragments no longer irritated the soft parts, and pain, a very constant inciter to spasm, was greatly averted; the mechanical means adopted in this instance answered every purpose, and I consider the apparatus far the best for the displacement under consideration. It is, as I have mentioned, of great value that the thigh should be slightly flexed on the pelvis; this relaxes to a sufficient degree the great extensor muscles of the leg; more particularly so if immediate reduction of the parts be had recourse to; again, in this box, the leg rests on a horizontal surface, receiving an equable support on all sides, padded so as to force the heel forwards; and by a few turns of a bandage, the upper fragments are restrained and pressed backwards; the two forces, thus acting in contrary directions, tend to confine the articulating surfaces in their natu-

ral relationship to each other; the side-splints superadded, with the triangular pad, not only steady the foot, but tend to invert it, so as to bring up the inner malleolus to the point from which it may be broken off. In this case the constitution very early exhibited indications of sympathizing acutely with the local affection. The wanderings of the patient's mind, the tremulous tongue, the slight startings in the limb, and, above all, the frequent, short spasms arising in most of the voluntary muscles, formed such a combination as to awaken great anxiety as to the result. This train of symptoms was met by the full exhibition of opium, in other words, placing the patient under its influence, and a due supply of his accustomed stimulant. While I admit the great power that the opium exerted over this train of alarming symptoms, I cannot but feel sensible that the admirable position which the limb maintained from the very first, tended materially to ward off their perfect development, and to consummate the happy result.

The foregoing case offers, I conceive, a good illustration of what may be effected by early co-aptation, and position, in the treatment of one of the most troublesome forms of fracture which the surgeon can be called upon to manage.

CASE II.—*Fracture of the Tibia an inch above the Ankle-Joint, with that of the Fibula half-an-inch higher up.*

Patrick Grace, aged twenty-two years, a powerfully made, muscular man, was admitted into Mercer's Hospital, under my care, October 8, 1851. He had been wrestling, and received two very severe kicks on the left leg from his antagonist, who wore strongly nailed shoes. On admission, the deformity of the limb was very great, and characteristically striking of the lesion that had taken place. The foot drooped backwards, the heel was lengthened, and drawn up by the extensor muscles, which were in rigid contraction; at the same time there was an angle salient in front, formed above the articulation. This combination, then, rendered the displacement remarkable. On



making extension at the foot, the leg being flexed on the thigh and held so by an assistant, the powerful action of the gastrocnemius was overcome, and a facility afforded of examining the nature of the fracture. By the force employed the foot could be brought up to its normal situation, which had the effect of entirely removing the deformity in front; and then by the slightest motion crepitus was elicited very audibly, and the tibia found to be fractured transversely an inch above the ankle-joint, and the fibula half-an-inch higher up. The integument over the part was much discoloured from contusion. I at once placed the limb in a fracture-box, such as already described, the thigh semi-flexed, and the leg resting on a horizontal plane, while the foot, together with the lower fragments, was kept well pressed forward by pads beneath the heel. Side-splints were then slid up within the box, to which the sole-piece was connected, thus maintaining the foot at a right angle with the leg; two bandages were then applied, as in the former case, and the region above the joint, the site of fracture, left uncovered for local applications; a full, warm opiate was administered, and all tendency to spasm of the calf in a short time subsided.

11th. He has had no pain or starting since the limb was put up; ordered cold to be applied to the injured part, and a full opiate to be given twice in the day.

14th. Up to this date the limb did not require to be disturbed; nothing could be more accurate than the co-aptation; scarcely any swelling about the part. On this day I applied Dupuytren's splint and cushion to the back of the leg, which effected equally well the apposition of the broken fragments; done up in this way the limb was placed in the fracture-box, with side-splints and foot-board as before.

16th. No displacement of the fracture; cold to be continued, and the opiates night and morning.

21st. I re-applied Dupuytren's splint, fracture-box, &c.;

the parts are in excellent position, and very little thickening about the fracture.

30th. I re-adjusted splints, &c., as before.

November 6th. Union progressing rapidly, so much so that on November 20th I removed the splints altogether; the union was quite firm, and I applied a roller to the limb.

26th. There is scarcely any thickening around the site of the fracture, not the slightest displacement or deformity whatever; and flexion and extension at the ankle-joint are permitted to nearly their normal extent.

30th. Dismissed, with all the motions of the joint healthy.

CASE III.—*Fracture of the Tibia and Fibula two inches above the Ankle.*

Michael Enright, aged 40, a large, muscular man, was admitted into Mercer's Hospital, under my care, October 9th, 1851. He was thrown from an outside jaunting-car, which was travelling very rapidly; he was tipsy at the time, and could not give any account of the accident. He was brought to hospital in six hours afterwards, and on examination, the right leg was found to be broken, the tibia having yielded two inches above its articulating surface, and the fibula a little higher up, about a quarter of an inch; the heel was drawn back and forcibly upwards, by the rigid contraction of the extensors, and the line of the tibia in front altered to a curve. Even at this early period, six hours after the receipt of injury, rapid effusion, chiefly of serum, had set in, producing great swelling and tension. By gentle and continued traction on the foot, the leg being flexed and steadied by an assistant, I wearied out the rigid spasm of the muscles effecting the displacement, and having restored the broken fragments to their natural position, they were retained in contact by the mechanical contrivances used in the preceding cases; cold was applied to the affected part, and a full opiate administered.



10th. The patient has not suffered from spasm or pain since the limb was put up on yesterday; effusion still very great; to continue the cold, and a full opiate twice a day.

12th. Œdema so much augmented, I considered it advisable to apply a wetted roller, moderately tight, from the toes to the knee, and on lifting the limb from the fracture-box there was a good illustration of the rapidity with which the distortion might be produced by the spasmodic action of the extensors, when not fairly and thoroughly controlled by efficient mechanical means. The parts were, however, again restored to a suitable posture, and retained by Dupuytren's splint, applied to the back of the limb; placed in the fracture-box, &c., and steadied as before. By this arrangement no deformity whatever was apparent, and the patient experienced the greatest comfort.

19th. I replaced the wetted roller at intervals of three and four days since last report, and with the best results, both as to the diminution of the swelling and the relief of the patient's feelings, "the bursting distention" which he grievously complained of being replaced by a soothing sensation, from the diminished temperature, and equable support afforded to the limb.

22nd. The leg had obtained its natural dimensions; all effused fluid being nearly absorbed, I now placed Dupuytren's splint along the calf of the leg, with its folded cushion and small pad, and by these means perpetuated the force, as brought to bear on the broken fragments from the very first; with these surgical appliances the limb was steadied in the fracture-box, as in the former cases.

November 1st. The limb is in perfect position, free from all swelling, and so immoveably kept, by the means adopted, that the patient solicited permission to be removed to his own home, a proposition to which I acceded, being certain that no displacement could occur.

November 6th. There is very little swelling about the fracture; soft union far advanced; I put up the limb as before.

December 8th. Since last report up to the present, the same line of treatment has been followed, and the case has gone on rapidly to cure; there is firm union, and the patient is able to walk about with the assistance of a stick; the motions of the ankle-joint are perfect, and there is not the least appearance of deformity.

CASE IV.—*Transverse Fracture of the Tibia an inch above the Ankle-Joint, with a Vertical Splitting of the lower Fragment into the Joint, and Comminuted Fracture of the Fibula extending higher up.*

Edward Dowds, aged twenty-eight years, a large, athletic man, by trade a gas-fitter, was admitted into hospital, under my care, October 14th, 1851. The history of the case is as follows:—He was working on the edge of a gasometer, at the height of five-and-twenty feet from the ground, when a part upon which he stood gave way; he felt it yielding, and to try and save himself, he leaped off, and came down upon his feet on a flagged pathway, from the shock of which he instantly fell to the ground, and was quite cognisant of the leg being broken; he both heard the crack and felt the most acute pain. Almost at the same instant he was assisted up, and brought immediately to hospital. The deformity of the leg was very great, the fibula being broken in pieces, from about an inch above the extremity of the malleolus for at least two inches; one piece in particular, a large one, was forced away from between the upper and lower fragments of the bone, and thrust under the skin on the anterior aspect of the leg and a little above the joint, thus leaving a great depression corresponding to the gap in the continuity of the lower part of the shaft of the bone. The tibia was broken transversely about an inch above the base of the internal malleolus, and this lower frag-



ment was split vertically from the articulation to the transverse fracture, the outer bit remaining attached to the external malleolus. The foot and lower fragments were drooping backwards, the toes pointed downwards, and the heel forcibly drawn upwards by the extensor muscles in rigid contraction; the transverse width of the joint was increased three-quarters of an inch. Such a combination exhibited the greatest amount of deformity I have ever witnessed, as the result of complicated fracture in the neighbourhood of the ankle-joint. All the solutions of continuity referred to, and the exact condition of the parts could be most accurately investigated, from the fact of scarcely any effusion or tension having set in when submitted to my examination. I at once set about restoring the parts to as accurate a position as was attainable. An assistant having raised the limb, and steadily supported it, I embraced the heel and dorsum of the foot between both my hands, and having made forcible and continued extension for at least a quarter of an hour, wearied out the contracted action of the extensor muscles, and was then able to bring up the foot and lower fragments on a line with the upper, and do away in a great measure with the deformity. On taking hold of the internal and external malleoli, one in either hand, they could be moved freely in contrary directions, and the vertical splitting causing the increased width of the joint, demonstrated through its entire extent. Having effected so much, the limb was placed in the fracture-box, with the heel well padded and raised; side-splints, cushions, and bandages being applied, as in the former cases; no power or motions whatever could get back into position the detached piece of the fibula above the joint. After the adjustment of the fracture the patient was relieved from all pain and uneasiness. From the mode in which the splints, bandages, &c., were put on, it follows that the injured part was left exposed for the application of local measures; linen steeped in cold lotion was ordered to the part, and a large opiate given.

21st. He has had no startings of the limb since it was put up on yesterday; but it is now hard and tense from effusion; exalted in temperature and painful: relays of leeches, six at a time, were ordered, so as to keep up a continuous drain, which was encouraged by warm stupes.

22nd. Limb a great deal more swollen, tense, shining, and painful, and, as the result, bullæ have formed over the site of the fracture in the fibula; leeches were ordered as on yesterday; warm stupes to be continued; and a full opiate to be administered twice in the day.

23rd. Swelling less, but still great tension; leeches again to be applied, and the opium continued.

26th. The discoloration of the limb is very remarkable; turgid, and all over of a yellow hue, resulting from the contusion; the bullæ are tense, firm, and do not recede on pressure; there is no constitutional disturbance.

28th. Re-adjusted the splints, pads, &c., with much comfort to the patient; cold to the affected part was ordered.

November 6th. Swelling and pain all gone; the bones are lying in excellent position, with the exception of the detached piece projecting above the joint; but this is not producing either ulceration or sloughing of the skin, as might have been anticipated; I placed the limb in the fracture-box, supported as before with splints, cushions, and foot-board.

December 10th. Firm union of the broken bones, and the amount of callus thrown out is very small, so that even the flexion and extension of the joint is not interfered with.

23rd. The parts are perfectly solid, and though some little tendency to eversion from the gap in the fibula being filled by a structure not entirely consolidated, yet the issue of the case has been most satisfactory; the motions of the joints are preserved in their fullest integrity, and it only remains for the perfect completion of the cure, that the patient should continue a little longer in hospital.



CASE V.—*Fracture of the Tibia and Fibula, an inch and a half above the Ankle-Joint.*

This case was admitted into hospital under the care of my colleague, Mr. Tagert, senior surgeon to the hospital.

Catherine Maclean, a large, full woman, aged 40, was received into the house, November 8th, 1851. She was going down stairs when she slipped and fell to the bottom of the flight, and her right foot was twisted violently under her; it was evident to her friends that the leg was broken, and she was instantly removed to hospital. On examination the tibia and fibula were discovered to be broken, an inch and a half above the ankle-joint. The deformity in this case was somewhat similar to that in the case No. III. The action of the gastrocnemius was marked, and the heel drawn backwards and upwards, an angle being formed salient forwards. By extension and counter-extension the opposing resistance was overcome, and co-aptation of the broken fragments ensued; the limb was then placed in a padded fracture-box, the heel being well supported and pressed forwards; cushions, side-splints, foot-board, and bandages were then put on, as in the former cases, and with a similar object.

November 9th. No startings, or pain, and the limb lies in excellent position.

13th. Dupuytren's splint was applied along the calf of the leg, with the object already explained.

December 20th. Up to this date nothing can be more satisfactory than the progress of the case. Dupuytren's splint has, at intervals of five and six days, been re-adjusted, and the result has been perfect exemption from displacement, and, by the steadiness of the posture, maintained the perfection of the union by callus. In a few days the patient will be able to leave the hospital, with the motions of the joint but little interfered with.

CASE VI.—*Compound comminuted Fracture of the Tibia, two inches above the Ankle-Joint, and Fracture of the Fibula a little lower down.*

Mary Irwin, aged thirty-eight years, was admitted into Mercer's Hospital on 18th November, 1851. The history of the case is, that she was tipsy and staggering from one side of the footpath to the other when she slipped off of the curb-stone, her foot still remained on its sharp edge, and she fell violently to the ground, crushing, as it were, the leg under her. In a few minutes she was brought to the hospital, the accident having occurred close to its doors. On the patient being stripped and put to bed the deformity was found, on inspection, to be very similar in its outline to that of the foregoing cases, with the very serious complication of the protrusion of the point of the upper fragment of the tibia, which was very sharp, through the integuments, two inches above the ankle; from the wound, about an inch in extent, blood was flowing very freely. In addition to this fracture the internal malleolus was broken in pieces, and the fibula, a little below the wound, on the anterior aspect of the limb. From the fracture of both bones nearly in the same line, the foot and lower fragments were permitted to be dragged backwards and upwards by the rigid spasmodic contraction of the extensor muscles, while the comminuted condition of the internal malleolus, the pieces of which were nearly driven through the skin, allowed the foot to be greatly everted, its inner edge being considerably the lowest part: thus the case was marked by frightful deformity. At the time when this woman was admitted to hospital Mr. Tagert and myself were in the accident ward, and, owing to the very recent occurrence of the injury, the most accurate conclusions as to its nature were arrived at.

The case was placed under Mr. Tagert's care, and he readily acquiesced in my proposal of treating it on the principles inculcated in the former cases. By steady traction and counter-



extension, the leg slightly flexed on the thigh, the protruding bone was reduced, the spastic action of the gastrocnemius overcome, and the foot and lower fragments raised forwards, and brought in a direct line with the shafts of the bones, and retained so by the mechanical means alluded to in each of the cases already detailed; the fracture-box, the side-splints, the pads and foot-board, the two bandages, each when adjusted rendered the contrivance perfect and most efficient in preventing motion or disturbance of the injured parts; and, in addition, the paramount advantage was obtained of having the site of the fracture uncovered—the wound thus exposed to observation and for local management, avoiding the necessity for that most reprehensible of all practices, the removal of the mechanical support. In this case, after the fracture was reduced and the limb restored to position, the bleeding ceased; but, from the patient being a full, plethoric subject, it was considered advisable to solicit its flow, which was reproduced in a small stream by the application of a warm stupe; after some time the drain ceased altogether, when a small compress of lint was placed over the wound and the warm stupes continued. Ordered an opiate immediately.

19th. She has had no startings in the limb; slept composedly; stupes to be continued.

26th. Limb lying in the same position as when first put up; some swelling has set in during the last four days, but its absorption is taking place rapidly under the application of cold; the wound is granulating healthily.

30th. A considerable amount of fibrine is thrown out about the fractured bones; they are softly connected, and in perfect position; the wound steadily healing.

December 16th. Wound healed, and union progressing rapidly. In this trying case the mechanical contrivance had only to be re-adjusted four times, so perfect was the support afforded to the parts, and so complete the exemption from spasm. She

continued daily to improve up to the 19th, when the patient requested permission to be removed to her own house.

One of my chief reasons for wishing to place these cases on record is the practice lately brought into requisition in London, in the management of the special fractures under consideration. I allude to *tenotomy*, the division of the extensor tendons, to facilitate reduction, as practised by Meynier, Bérard, Laugier, and other French and German surgeons. A lengthened discussion not long since took place before the “Medico-Chirurgical Society of London, on the practice of tenotomy, in some cases of fracture, when Mr. C. De Morgan related some cases in illustration”<sup>a</sup>. In the first cited, the tendon was not divided until the day after the accident. “The second case occurred in the author’s own practice; the patient was a female aged 66; of drunken habits, and was admitted into the Middlesex Hospital in March, 1849. She had been knocked down by a cab, and both bones of one leg were fractured a little above the ankle.” The report goes on to say:—“The author divided the tendo Achillis on the ninth day, with instant relief to the suffering of the patient, and immediate removal of all untoward symptoms.” A very important feature in the management of these cases has been omitted altogether: the manipulation adopted for the reduction of the fracture, and the position in which the limb was placed afterwards. In the second case it is stated that “the tendon was divided on the ninth day.” I can easily understand that this might be requisite, if the fracture, with its attendant deformity, was left unreduced for that length of time; failure of the therapeutic means employed; and the spasmodic action of the extensor muscles thus prolonged; for if fractured bones be left unreduced for such a lengthened period as this, *permanent* spasm seizes on the mus-

<sup>a</sup> I quote from Braithwaite’s Retrospect; but a notice of them also appeared in the Number of this Journal for May, 1851, page 372.



cles and becomes established; a fact clearly pointed out and insisted on by Sir A. Cooper. Mr. De Morgan goes on to say: "In the cases related, the chasm between the divided portions at first did *not* exceed a quarter of an inch, that being sufficient to get the bone into position; and in a short time after there was no appreciable space at all." This admission goes still further to proclaim that there is no necessity for division of the tendon to effect reduction, if the case is seen early; for by flexing the thigh as I have recommended, we can relax the extensor muscles more than "the quarter of an inch, that being sufficient to get the bone into position." I am of opinion that in ninety-nine cases out of a hundred, there will be no necessity for division of the tendon to effect reduction, if the limb be treated as I have advised; nay, on the contrary, I think, in some instances, the division of the tendon would be very injurious, as removing the support posteriorly from the ends of the broken bones, and thus permitting displacement in that direction. The mode in which the fracture-box, which I have described, supports the leg in a horizontal line, with the thigh slightly flexed, padded, and cushioned, as illustrated by the foregoing cases, meets every requirement of the surgeon. Dupuytren's splint, in conjunction with these means, as used in some of my cases, is a most admirable adjunct; but taken by itself, it will not answer as well for the management of the form of fracture under consideration; for if the limb be done up as directed by Dupuytren, and placed flexed upon its side, some lateral displacement will take place; or if, with the splint so applied, the leg be allowed to rest upon the heel, it is unsteady and rolls about, and the entire limb is in the extended position, a posture very objectionable, as making tense the tendo Achillis.

From a review of these cases and the observations upon them, the following facts are, I think, deducible:—

First, That by proper position of the limb, and early re-

duction, co-aptation of the broken fragments can be effected, and spasm averted.

Secondly, As the result of the broken bones being kept in accurate position, irritation is subdued, excess of callus prevented, and the motions of the joint left unimpaired; a fact of great practical importance here, for the experiments of M. Cruveilhier prove that various forms of irritation will make the periosteum and ligaments ossify, and it has been ascertained that in some cases of fracture near the joints the ligaments have sometimes been converted into bone, and M. Rayer has observed, from numerous interesting experiments, that a similar change may be exerted not only in the fibrous but also in the cartilaginous structures.

Thirdly, That tenotomy is not called for in the vast majority of cases, being perhaps only admissible when permanent spasm has located in the extensor muscles, owing to neglect of early reduction.

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ART. VIII.—*Some Account of an Epidemic of Pericarditis, which appeared in Kilkenny in the Winter of 1848-9.* By JOSEPH LALOR, M. D., Physician to the Fever Hospital, Lunatic Asylum, and Union Workhouse, Kilkenny.

THE period which elapsed from the autumn of 1847 to the setting in of cholera, in the spring of 1849, was remarkable in this locality for the great variety of acute febrile diseases which prevailed, and for the absence of that usual predominance of some specific form of fever which, during its own prevalence, not uncommonly excludes, nearly altogether, other forms of febrile disease. With the autumn of 1847 an improvement had commenced in the material condition of our people. The employment, the wages, and the supply of provisions which this harvest brought with it, had given a wholesome diffusion to the masses of people who had congregated in our workhouse, in our city, and around our relief depôts, as centres either of pri-



vate benevolence or of public charity, and which had afforded the sole means for obtaining food to so large a proportion of the population.

A decided diminution in the number of cases, and a more sthenic type of fever, were the immediate results of these favourable circumstances, and continued to prevail until the spring of 1849. It is more within the province of the politician or the statist, than connected with my present purpose, to trace the causes of this permanence in the general improvement of the material condition, and with it of the health of the people. But this period was evidently one of transition, and this improved state was not without interruptions, drawbacks, and exceptions. Thus our workhouse had still to suffer occasionally from undue pressure on its means of accommodation; cases of great and long-continued privation were still not infrequent; vagrancy, mendicancy, and overcrowding in the low lodging-houses of our lanes were still unrepressed. Our old typhus and its relapsing congener, dysentery, diarrhoea, measles, influenza, and small-pox, occasionally appeared, in short and fitful outbursts. However, amidst all this variety in the specific form of fever prevalent at any given period, the leading features of a great diminution in the number of cases and a more phlogistic type of fever, prevailed throughout the whole period from the autumn of 1847 to the spring of 1849.

Amongst the inflammatory complications and sequelæ prevalent, perhaps the most general, interesting, and important were pleuritis, pneumonia, and pericarditis. The months of November and December, in 1848, and the commencement of the year 1849, up to the outbreak of cholera in February, were particularly marked by the great variety of febrile diseases prevalent about the same time, and the general tendency of them all to be accompanied by inflammatory local affections, particularly of the lungs and pericardium. The history of our fever hospital for these three months presents, in a concen-

trated form, what was more or less the medical constitution of the previous twelve or fifteen months. The various forms of febrile disease admitted into my wards during this time were, erysipelas, dysentery, variola, varicella, pertussis, urticaria, maculated typhus fever, influenza, rheumatism, diarrhoea, puerperal peritonitis, scarlatina, cynanche tonsillaris, rubeola, simple continued fever, and febricula. The total number of admissions was 232, and in fifty-five of these cases, or more than one-fifth of the whole, serious inflammatory chest complications (exclusive of bronchitis) occurred: viz., pleuritis, pneumonia, and pericarditis, either singly or in various combinations, one with another.

These inflammatory complications arose in the course of the various forms of febrile disease already enumerated, but most frequently in connexion with influenza, which was very prevalent for the three months. Of course the proportional mortality was much larger in those cases accompanied by such serious inflammatory complications than in others which presented only the ordinary symptoms and dangers belonging to their specific febrile class. Thus, of the fifty-five inflammatory cases, thirteen died, whilst out of 177 cases free from such complications, fifteen died, being in the first instance more than twenty-three per cent., and in the latter nearly eight and a half per cent.

As the greater number of those admitted had previously been inmates of the workhouse, so also the larger number of the inflammatory complications occurred in the same class; but the proportion which the complicated cases bore to the admissions was pretty much the same in those admitted from the workhouse and from elsewhere. The proportion, however, which the number admitted from the workhouse labouring under febrile diseases bore to the number of inmates in that institution, was much larger than the proportion which the number of admissions from outside of persons labouring under similar attacks, bore to the entire population of the district out-



side the workhouse, which supplied the cases to the fever hospital.

I met with one case of pericarditis, in my private practice in connexion with pertussis, and it was fatal, and I have reason to suppose that pericarditis occurred during the period to which my observations apply in other cases among the wealthier classes of this city. Several cases of pleuritis, pneumonia, and pericarditis appeared, besides those admitted to the fever hospital, amongst the inmates of the workhouse, and were treated in the non-contagious hospital of the institution. These cases presented from the outset, or from the time when they first came under medical treatment, more of the character of pure inflammation—in which the fever was of a secondary and symptomatic type—than did those admitted to the fever hospital, in which the fever appeared to be the primary, and the local inflammation the secondary disease.

But the line of demarcation was exceedingly difficult to draw, and was, perhaps, more arbitrary than real, for it may well be doubted if diseases so similar in their leading features, occurring epidemically, under precisely similar circumstances, and differing only in the order of sequence of their symptoms, were essentially different. The line of treatment and results were pretty much alike in both. In three only of the cases of pericarditis included in the fifty cases of inflammatory chest complications, was the inflammation confined to that part, and in all the other cases of pericarditis included in this list, the pleura or substance of the lungs was engaged also and almost invariably at the left side. The inferior lobes of the lungs were invariably those affected, and I have not met with any cases in this epidemic of that form of inflammation of the upper lobes described by Drs. Corrigan and Henry Kennedy.

Even when the organs within the chest had been from the first the seat of primary local inflammation, but still more when a purely febrile stage had preceded the local disease, the subjective symptoms did not ordinarily present that clear and

well-marked pathognomic character which might be expected, as well from the vital importance of the affected organs as from the extent of injury which physical examination revealed. In general the cough, dyspnoea, and local pain had rather to be inquired after by the physician, and were not voluntarily made the subject even of complaint, still less of repeated and earnest cries for relief, as is more commonly found to be the case by the medical attendant. This latency of the subjective symptoms, more especially in such a disease as pericarditis, was very remarkable, and it was with no little surprise that I witnessed for the first time an occurrence which afterwards repeatedly came under my observation. It was that of a mother for the first time bringing up for medical advice her child, of the age of seven or eight years, and stating that it had recently and quite suddenly taken ill, the child at the same time presenting a sunken countenance, with the other symptoms of collapse, and the dull, heavy sound of a heart plashing in fluid, of the existence of which subsequent *post mortem* examination left no doubt. I am fully aware of the dislike of many persons, and of parents especially, to have themselves or their children sent into hospital, and more especially a fever hospital, and I know the efforts which they sometimes make to conceal their own illness or that of their children; but I do believe that some cases of pericarditis in this epidemic were presented for medical advice only in the last stage, not from a desire of concealment on the part of the patients themselves, their friends, or their parents, but because the disease really had run its course in such an insidious manner as to be unobserved, or considered as only some trifling ailment.

In some such cases no sense of pain or uneasiness in the region of the heart has been admitted by the patient, often even when inquired after. In others, however, when an opportunity offered of observing the inflammatory attack from an early stage, the physical signs and the objective and sub-



jective symptoms also (unless so far as their latency, already adverted to) were those ordinarily met with, and which it is unnecessary to particularize fully. The character of the pulse was very different, according as the pericardium, the pleura, or the pulmonary substance was the part affected. In pericarditis the pulse was wiry, vibrating, shabby, small and compressible, as if the artery was only half filled.

In the early stages of pericarditis, pain, even though not voluntarily complained of by the patient, was always markedly produced by pressing a finger between the ribs over the heart, or by pressure under the false ribs, so as to bear on the serous membrane,—in the latter case, through the intervention of the diaphragm. When effusion had taken place, a sense of uneasiness or embarrassment of the respiration or circulation, and not pain, were the sensations complained of. When the pericardium was engaged, there was a greater tendency to collapse, and to coldness of the surface and extremities, and the expression of the countenance was more anxious than in mere pulmonary inflammation. The cheeks were sometimes pale, or of a mottled lividity, like that produced by exposure to intense cold. Indeed the lips and cheeks were rather exsanguine, and there was neither the dark, livid congestion of the face of bronchitis nor the bright-red flush of pneumonia. This cold, sunken cheek, with a pinched and corrugated cuticle and thin-drawn lips, of a light-blue shade, showed rather a diminished circulation, and a great deficiency of red corpuscles. In pneumonia unaccompanied by any pericardial complication, a bright vermillion tint of the cheek at one or both sides, according as one or both sides were engaged, was very general. In some chronic cases, with very extensive effusion into the pericardium, extreme dyspnœa and orthopnœa occurred, or a distress and embarrassment of the respiration so great as to render even a brief continuance in the same posture intolerable. This intolerance of rest in any position produced a constant and most harassing desire for change of posture,

allied to jactitation, which banished all sleep. If extreme weariness sometimes overcame this instinctive restlessness so far as for a moment to lull the senses into an unquiet slumber, the horrors of nightmare again quickly aroused the affrighted patient. In such cases the quantity of red corpuscles seemed to be restored, and a congested countenance like that of morbus cœruleus, succeeded to the sunken and half-pallid features of the earlier and more acute stages of pericarditis. I saw a patient in this state survive for several days in the most wretched state of suffering.

As to the exciting causes of the inflammatory epidemic under consideration I can only speak negatively. It could not be traced to the action of cold, either local or general; rheumatism was not prevalent at the same period, and so far was a sthenic state of the constitution from being a necessary antecedent that the subjects attacked were in many instances delicate and emaciated. A remarkable instance of this was presented in the case of Anne Jackman, aged nineteen years, who was admitted to the fever hospital with petéchiæ typhus fever, which ran its usual course until, perhaps, the fourteenth day, when the intellect became clear, the tongue cleaned, and the appetite returned, the pulse, however, remaining quick, thrilly, and shabby. The patient no longer laboured under typhus fever, but from the character of the pulse convalescence could not be said to be established; whilst the great debility and emaciation of the girl might be the cause of the quick pulse, and at all events appeared most unfavourable to the development of any active inflammation. A puffy swelling had appeared simultaneously with the above remission of the typhoid symptoms on the dorsum of the left foot, from the toes up to the ankle, which space was also suffused with a blush of erysipelatous redness. The swollen part was so extremely sensitive that even the pressure of the bed-clothes was loudly complained of, and moving the joints of the tarsus on one another produced intense torture, at the same time



communicating to the hand a very peculiar sensation, somewhat between the crepitus of a fracture and that of emphysema. No complaint was made of pain in the region of the heart, but the pulse was of that character which indicated pericardial inflammation, and the heart's sounds and impulse were obscure, distant, and tumultuous, as if the organ moved in a fluid medium, which at the same time embarrassed its motions and muffled its sounds. On the death of this girl I found extensive honey-comb plastic effusion adherent to the two surfaces of the pericardium, and in the intervening space a quantity of whey-like serum, in which flakes of lymph floated. All the articulating surfaces of the tarsal bones with each other, and with the bones of the metatarsus, were smeared with a purulent coating, on scraping off which, the synovial membrane underneath appeared minutely and universally injected, except where occasional small ulcers had removed it, and exposed the carious bone beneath. This girl had been admitted to hospital on the 20th of December, 1848, and died on the 13th of January following. The date of her partial convalescence was the 29th, and at the time of her admission she was reported as being only one day sick; but it is extremely probable that she had been longer ill, as she was an extern case from the country, and such cases are rarely indeed sent to hospital even on the third or fourth day of their illness.

The *treatment* which I pursued was chiefly local derivation, counter-irritants, and mercury. I never bled generally, and but seldom had recourse to topical bleeding, and even then sparingly. Tartar emetic was sometimes given with the mercury, with which opium, in some form or other, was always combined. Most generally the milder combinations of James' and antimonial powder were considered more eligible. In two cases of pericarditis, digitalis was joined with the mercury and opium. On reviewing my treatment, I do not regret that I was not more energetic; and I consider that the results

were at least as favourable, under the comparatively mild plan pursued, as if more heroic remedies had been used. In fact, the great difficulty in the management of these chest complications lay not in the selection of appropriate remedies when the complication was recognised, but in the latency of the disease, masked, as it generally was, by the concurrent fever, and absence of complaint on the part of the patient, and the slightness of some other of the more important subjective symptoms. When the local affection was recognised in its early stages, even though it presented the formidable character of pleuritis or pericarditis, or of both combined, a moderate but steady course of counter-irritants, and mercurials, by the mouth, by inunction, and on blistered surfaces, premised in some cases by one, or at most two moderate local detractions of blood by leeches, according to the strength of the patient and the acuteness of the symptoms, were sufficient to arrest the disease, at least as satisfactorily as more energetic measures.

When the inflammatory complications did not come under notice until a more advanced stage, the time for heroic treatment had manifestly passed away. In many of the cases it was of great importance to spare the strength as much as possible, and not unfrequently wine and broth had to be administered at the same time that the antiphlogistic measures above referred to, were carried out. It was a very rare occurrence that the constitution could not be brought under the influence of mercury, even in very mild doses, in cases of pneumonia, which appears to render the system peculiarly susceptible of its influence; and this fortunate idiosyncrasy of this disease was taken full advantage of to avoid the exhaustion of more violent antiphlogistic and depletory remedies, especially when it was particularly desirable to husband the vital powers as much as possible, owing to various causes, such as natural weakness of constitution, the concurrence of a debilitating fever of uncertain duration, &c. &c. In many cases the treatment was most



favourably assisted, and I would say, in some instances anticipated by a natural and critical termination, usually either by sweat or diuresis.

Thoracic inflammatory complications continued to appear in fever cases, though not with equal frequency, after the appearance of cholera in February, 1849, until the following summer, when their occurrence became still more rare; and I have not seen a case of pericarditis since the summer of 1849. Very soon after its first appearance, cholera in a great measure usurped the place of other acute diseases previously prevalent, and from its frequency and appalling character, engrossed the chief share of public as well as of medical attention. Our fever hospital wards became quickly crowded with cholera cases, either admitted from the workhouse as such, or occurring amongst patients admitted in fever. As bearing on the mercurial treatment of cholera, it is well worthy of remark, that those persons under the influence of mercury for some inflammatory attack (of whom there were many from time to time) were by no means exempt from cholera, and it is my impression that they were attacked even more frequently in proportion to their numbers than were those who had taken no mercury.

ART. IX.—*On a Variety of Uric Acid Crystals.* By ROBERT D. LYONS, M. B. T. C. D., M. R. I. A., &c.

ALTHOUGH many deviations from what may be considered as the normal type of crystalization of uric acid have been already noticed and figured by writers on urinary deposits, I am induced to describe an unusual variety which recently came under my observation, with the view of facilitating the studies of the junior micrologist, who is frequently much embarrassed when he meets with appearances differing in any marked degree from the formulized descriptions of systematic works. The subject of the following observations was a patient in

Jervis-street Hospital, during the months of December and January last ; and I am indebted to Dr. Neligan, into whose clinical wards he was admitted, for the opportunity of examining his urine. His life had been irregular, laborious, and intemperate, and he had for a number of years suffered from a cardiac affection. About twelve months before he came under observation he had an attack of acute pain in the lumbar region, and shortly after began to pass urine, which became muddy, as he termed it, and deposited a reddish sediment. For this affection he has been subjected to treatment at various periods, but without permanent relief. Omitting those particulars of the case which have no immediate reference to the question under consideration, I shall confine myself to the condition of the urinary secretion. In quantity it seldom exceeded from fifteen to sixteen ounces, was clear on being voided, and exhibited a highly acid re-action ; on cooling it deposited a copious pale pink sediment, which occupied about three-fourths of the height of the bottle in which it was contained, in addition to which a blood-red deposit was to be seen at the bottom, forming a stratum about one-sixteenth of an inch thick ; this consisted of particles whose irregular shape could be distinguished by the naked eye, but no distinct crystalline appearance could be made out, and the whole presented at first sight no indistinct resemblance to fragments of coagulated blood, for which it might readily be mistaken by a superficial observer. A portion of the deposit, placed under the microscope, exhibited the usual form of lithate of ammonia, with numerous large crystals of a very beautiful and, to me at least, unusual appearance. Their colour varied from a reddish-fawn to a deep brown-red ; their shape and size also varied much ; they all appeared to be very fragile, a slight amount of pressure on the covering-glass being sufficient to break them into irregular fragments. The smallest were tabular, or, in some instances, lozenge-shaped, and not infrequently cubical : their longest diameter (measured



approximately by Nacet's micrometer eye-piece) about  $\frac{1}{300}$  of an inch. The largest were flat, oblong, thin, and of a great variety of shapes, and measured in their longest diameter fully  $\frac{1}{20}$  of an inch; an average size for the larger crystals was about  $\frac{1}{30}$  of an inch. But it was in shape and grouping that the most remarkable characters were to be observed. All the crystals presented a tint varying from a rich reddish-yellow to a deep brown-red; some in shape resembled the ordinary lozenge familiar to all microscopists, from which they differed only in colour and size, their long diameter being, in several instances,  $\frac{1}{20}$  of an inch. Others were piled in thin, quadrangular laminae, of various sizes, over each other; some represented an ellipse pointed at both ends; some, rhomboidal prisms, and this latter variety was the deepest in tint; some again presented an extremely regular, obelisk-like figure, which, springing from a mass of elliptical and rhomboidal red crystals, all presenting a very pleasing contrast of colours, formed a group of great beauty. The tabular form was the most frequent, the elliptical and rhomboidal next, while the *obeliskoid*, the most beautiful in appearance, were the least numerous; a great variety of intermediate and indefinite shapes, which it would be impossible to describe, existed in abundance. The size, the shape, the variety of grouping, and the colour of these crystals, appear to me to be worthy of notice. I confess that I did not myself at once recognise their true nature, and the resemblance of some of them to the crystalline fatty bodies, in the manner of the superposition of their delicate laminae on each other, induced me for a moment to mistake their real origin, and to suppose them the product of some cyst, the more so as we know that fatty crystalline bodies will often imbibe a portion of the colouring matter of the blood. The action of caustic potash, and their dissolution with effervescence in nitric acid, with the subsequent formation of crystals of nitrate of urea, recognisable by the microscope, corrected my too hasty impressions.

The works of Golding Bird, Watson, and others, have made us familiar, through their very accurate wood-cuts, with many varieties of uric acid crystals, but I have not seen figured anywhere shapes precisely similar to those I have just described, and I therefore conceived that a notice of the forms which have come under my observation would not be unacceptable, especially to the junior investigator, who is often called upon to decide the nature of a specimen, the history of which he is not put in possession of.

While engaged in writing the above, I have met with another specimen of large crystals of uric acid, precisely similar, as regards size, colour, and variety of shape, to those I have just described. They constituted a deposit sent to me in the dry state, for examination, by Dr. O'Ferrall. In some of the crystals of this specimen a very beautiful appearance occurred from the presence of oxalate of lime, numerous crystals of which, both large and small, adhered to the surface of the prisms of uric acid.

The colour of uric acid deposits is a subject on which it appears to me some obscurity still remains. The crystals, as viewed by the microscope, under ordinary conditions, when they present tables, lozenges, or cubes, are usually transparent and nearly colourless; this may, therefore, be taken as their normal condition. Notwithstanding, however, that all writers are familiar with the occurrence of uric acid sand, exhibiting pink, orange, or red colours, I do not find that any explanation has been offered of this circumstance, which we may look upon as a departure from the normal physical properties of this crystal. I am myself disposed to believe that in such cases the uric acid is tinted by the addition of a substance capable of being separated from it, and forming no necessary portion of it. I should be induced to believe that purpurine was in some measure connected with this coloration of the crystals of uric acid, but for the very decided opinion to the contrary ex-



pressed by Dr. Golding Bird, whose accuracy as an observer is unimpeachable. At page 172 of the last edition of his work on Urinary Deposits, this eminent authority states: "I have never seen purpurine colouring any other deposits except those of urate of ammonia, and hippuric acid, when precipitated by hydrochloric acid. Uric acid scarcely appears to have any affinity for it."

In the remarkable specimen which I have described above, the colour varied, as I have already stated, from a reddish yellow to a rich brownish red, all varieties of tint being observable in the small as well as in the large crystals. The quantity of the specimen was not sufficient to allow of my examining the colouring matter in a complete manner. I found, however, that it was destroyed by boiling the crystals either in a portion of the urine from which they were taken, or in water; alcohol had a similar effect, and the crystals, when subsequently placed under the microscope, were found to have lost colour, and also to have been almost all more or less fractured. Nitric acid also discharged the colour before the crystals dissolved. Hydrochloric acid did not give any increase of colour, as might be expected if purpurine was present; but I must observe that this re-action was not exhibited in the case of the lithate of ammonia of the same specimen of urine, though it presented a decided pinkish tint, before the application of heat or hydrochloric acid. The decolorization of the crystals caused by heating them in urine, water, or alcohol, and the same effect following the addition of nitric acid, lead me to believe that their colour is due to a substance in combination with them, and which is capable of being liberated from them. Against the respected authority of Dr. Golding Bird I will not venture to say at present that this colouring matter is purpurine, or any variety of that substance, but I shall not be surprised if further research prove them to be identical. However that may be, the cause of the great variety of colour observed in different specimens

of uric acid appears to me highly deserving of attention, as constituting an unsettled and obscure point in urinary pathology.

How far a more accurate and extensive knowledge of the conditions under which the striking varieties of colour and crystalization observable in different specimens of uric acid are produced, would lead us to more precise pathological and therapeutical results, it is extremely difficult to conjecture at present. As a question of scientific interest, however, the determination of these points is in the highest degree desirable. The opinion of Dr. Burton, and the results arrived at by Dr. Schmidt of Dorpat, in his experiments on the *genesis* of uric acid, afford indications at least of the directions in which such inquiries may be pursued with a probability of successful results. The former is of opinion that the composition of the urine modifies the form of the crystal, and the latter has proved that variations in the rapidity and manner of precipitation will cause corresponding differences in the crystalline forms produced. If the latter statement hold true for the pathological formation of crystals within the body, as well as for conditions of experimentation without, as there seems every probability, we may be warranted in believing that the large crystals, such as I have described, must be the result of a comparatively slow process of formation in some portion of the urinary system. And if such be actually the case, we can readily conceive that an increased liability to the retention and impaction of a crystal is thus afforded, whereby the chances of subsequent deposit and formation of calculus are materially increased.



## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Lettres sur la Syphilis, à M. le Docteur Amédée Latour, Rédacteur en chef de l'Union Médicale.* Par M. RICORD. Paris: 1851<sup>a</sup>.

WE shall now resume our analysis of M. Ricord's Letters, the remainder of which are devoted to an exposition of his views on true syphilis. In the preceding part he endeavoured to demonstrate that if blennorrhagia had a specific cause, it was not always easy, or even possible, to point it out, and he endeavoured to establish that the disease was not the effect of syphilis properly so called, that the consequences were quite different, and that the treatment, unless empirically employed, should not be that which we would use in syphilis.

He now commences by inquiring, where had syphilis its origin? and in whom did it begin? These questions, he fears, cannot be answered; but he affirms that syphilis, as known in the present time, is never spontaneously developed in man, but is transmitted from individual to individual, and yet, as we have already remarked, the disease is not met with in any other class of animals.

It must strike every one who studies history without preconceived opinions, that we find in the ancient writers, those who have written anterior to the epidemic of the fifteenth century, perfect descriptions of what are termed primary symptoms, or rather primary antecedents. Can we find at the present time a more true and more faithful description of them than that given by Celsus? Galen, too, describes accurately the symptoms on the genital organs, with their consequent affections of the throat. Gulielmus de Saliceto was aware that pri-

<sup>a</sup> Continued from vol. xi. p. 149.

mitive ulcers of the penis were contracted by contact with unclean women, and fully established the relation which existed between ulcers of the genital organs and buboes, &c. But the earliest observers and historians of syphilis seem to have overlooked the exact connexion between primary symptoms and their consequences.

What was the leprosy of that period? Was it the leprosy of the Greeks or of the Arabs with which we are acquainted at present? That it was not is shown by the fact that the ancient leprosy was often contagious, and was often communicated by sexual intercourse. It, therefore, certainly is not the leprosy of the present time.

But here M. Ricord announces that he has no pretensions to a knowledge of retrospective science, the writings of Astruc having frightened him from a labour so great, attended with such slight results, yet he has often asked himself, what was that terrible epidemic of the fifteenth century, and whence came it.

This terrible epidemic of syphilis, which no one who witnessed dreamt of attributing to the New World, was ascribed to this origin in the writings of Orviédo. This fable, which was put forth by Astruc also, our author does not think it worth the trouble to dispute, and only begs to be allowed to make an observation upon it in a pathological point of view.

“To have caused an epidemic,” says he, “upon so great a scale, it would have been necessary that all, or nearly all, the sailors of Christopher Columbus should have contracted the disease so as to import it. It would also have been necessary that, during a very long voyage, which in those times was not made by steam, the primitive sores should have rested in the stage of progression or of specific *statu quo*, and have been capable of furnishing contagious pus. Again, wonderful to be told, the sailors of the fleet, having arrived at Lisbon and Bayonne, did not infect the women of these ports, and yet is it probable that, contrary to the habits of sailors of all times, these men, after a long voyage, did not mix with women after their arrival in port. It was not to the women of Lisbon and Bayonne that they communicated their disease; they left for Italy where they joined the army of Gonsalva de Cordova, in May, 1495, and it was there that they communicated the disease—but to whom? I cannot tell, if it was not in Italy, in the midst of the three armies, Spanish, Italian, and French, and there a disease already known, in 1493 or 1494, raged with fury, each of the belligerents throwing the shame of having communicated it on the other!”



M. Ricord does not wish to pursue further an inquiry into a history so obscure, the more particularly as he can throw no light upon it. He merely inquires if the epidemic of the fifteenth century resembles the venereal diseases of the present time, and to this he answers,—certainly not, for the disease, as observed at present, resembles infinitely more that described by the ancients than that of the fifteenth century.

The author, having studied with care the description of the epidemic of the fifteenth century, had his attention drawn to the fact, that the manner of transmission, the predominance of constitutional symptoms over primary, which were not present, or, if they had been present, were unobserved, seemed to resemble much more—as far as our present knowledge enables us to judge—the character of acute glanders or farcy than syphilis. Van Helmont, however, has broached a similar idea, which has been looked on with ridicule, his idea being that syphilis was derived from farcy. The knowledge of glanders and farcy attacking the human race is but of recent discovery; but the aptitude of the human race to contract this disease from horses, which has been known for ages to have existed amongst them, cannot be of modern date, and, doubtless, patients attacked by glanders and farcy were formerly supposed to have laboured under syphilis.

The manner of transmission of the epidemic of the fifteenth century demands attention. It is recorded that the disease was communicated by the breath from one to another in the churches, &c., and so great was the belief in this manner of transmission, that Cardinal Wolsey, being accused of having syphilis, was tried for whispering in the ear of Henry VIII. This manner of transmission, as regards the venereal disease, which demands immediate contact, is inexplicable; and that it was not believed in by all is well known, as we find Fallopius laughing at others for their credulity. The epidemic was considered by Paracelsus and others as an admixture of the old venereal disease with leprosy, but might it not be more probably considered as an admixture of the ancient venereal virus with glanders and farcy? glanders, so common amongst horses, and especially during war, from the attendant circumstances. M. Ricord thinks that he does not go too far when he says that we owe the first glimmerings of light upon this subject to the labours of Rayer and his school, and to Renaud (of Alfort), who have proved with what a terrible disease man has been afflicted, and in which he sees so close a resemblance to the epidemic of the fifteenth century.

What a field here opens for observation? Who as yet knows

what are the effects of glanders transmitted from man to man, and what changes the symptoms undergo as they become more remote from their primitive source? The effects of hereditary influence are unknown, for although we are aware that patients affected with glanders have the power of procreation, we are as yet ignorant what are its effects upon the offspring. These ideas being nothing more than hypothesis, our author adopts the same conclusion, as to the origin of syphilis, as Voltaire did with regard to the fine arts, viz., that neither their origin nor inventor has yet been discovered.

M. Ricord next proceeds to attempt to determine the source where the specific cause of the morbid poison producing syphilis is found,—a poison which we are no longer afraid to call by its proper name, *syphilitic virus*. This virus was but some time since formally denied to exist, and even the learned Jourdan exclaimed, in an access of passion,—call it what you please, but do not give it the name of virus. The knowledge of its source he states that he has attained by means of the point of the lancet. It was by studying comparatively the different symptoms reputed as syphilitic he arrived at the demonstration that but a single condition regularly supplied purulent matter, which, on being placed in circumstances we are about to point out, caused, in virtue of a special irritation, an ulcerative inflammation, identical with that from which it had its source, and which produced in its turn the same special secretion, the same morbid poison, and that without limits. The syphilitic virus, under favourable circumstances, inevitably produces the same primitive phenomenon, to which has been given and which still preserves the name of chancre; and it is only, as has been already remarked, when we can see the surface from which the morbid secretion with which we are about to experiment has been taken, that we can with certainty obtain positive results and again reproduce them.

“ This,” says the author, “ is also the experience of MM. Puche and Cullerier, at Paris; Beaumés and Diday, at Lyons; Renault, at Toulon; Serre, at Montpellier; Thiry, at Brussels; Laffont-Gouzy, at Toulouse, &c.

“ Whenever a chancre has been produced from matter which was not taken directly from a primitive ulcer, the secretion was furnished by surfaces which could not be seen. The small number of cases, apparently exceptional, in which a chancre could be reproduced with purulent matter taken from a non-ulcerated surface, find their rational explanation in facts analogous to those the history of which has already been given. As regards the surfaces that cannot be seen, how can it be concluded



that they were not the seat of chancre, when they furnished a similar secretion? If it were proved that the primitive sore, the fatal source of the syphilitic virus, could exist only upon exposed surfaces always visible; that the depths of the urethra and the cavity of the uterine neck could not be the seat of these concealed ulcerations,—if that were proved, it would be sufficient; but does there exist a writer on syphilis who denies the existence of a primitive ulcer in these regions; who does not know, and who does not believe that syphilitic ulceration is not always visible? How then deny the possibility of the existence of concealed and deeply seated chancre, when it furnishes itself the most irrefragable proof, that is, its peculiar secretion.”

It has been urged that inoculation does not prove the existence of the specific cause of syphilis; that it would be preferable to abide by the ordinary results of contagion to arrive at that proof, inasmuch as with any description of pus could be produced the effect, which M. Ricord holds could be produced only with pus taken from a chancre; that it may be caused by any description of pus, whilst by the mysterious way of ordinary contagion phenomena are observed which inoculation could not produce. “It is at least strange that these arguments are employed equally by the believers in a syphilitic virus, and by those who deny its existence. In fact, what say the physiological physicians? That with any sort of pus, no matter whence derived, we arrive at the same result, that is to say, at the production of all sorts of venereal diseases.” “And upon what do they rely to maintain this doctrine? Upon all the uncertainties which usually accompany the circumstances under which venereal diseases are contracted; upon the neglect of examining females; upon the plurality of results caused by one woman upon many men, when some escape; in fine, after all the fictions that we have already pointed out and combated, and after what the speculum has brought to light, we are truly astonished to see men of such undoubted merit as M. Cazenave wish still to support such antiquated doctrines.”

But M. Ricord is also astonished at those who, believing in a syphilitic virus, recognising in syphilis a specific cause, and a virus with a specific action, maintain that with any description of pus effects can be produced analogous to those of virulent inoculation. “Do the partisans of these doctrines,” says he, “think that inoculation with any description of pus will produce vaccina or variola? If we gave them purulent matter whose origin and source they were unacquainted with, what would be their criterion to determine its nature, if it were not

the effects produced? And is it not thus that we should distinguish syphilitic pus?" The author has inoculated the same patient a hundred times with the pus of chancre, with the pus of *balano-posthite*, with the muco-pus of urethral blennorrhagia, with the muco-pus of blennorrhagic ophthalmia, with pus furnished from phlegmonous inflammation from other regions of the body, and yet it was only the pus of chancre that always reproduced chancre, the others remained without action. What more proof can be wished for, and what can be opposed to it?

Another objection also has been raised. It has been said that inoculation proves nothing as to the nature of the cause by the effects that it produces upon an individual already infected: in other words, by inoculating the patient with the secretion furnished by himself, no conclusion can be arrived at, as every wound can, and ought to become syphilitic. "This," says M. Ricord, "is a strange error, the consequences of which might be very serious, a dangerous prejudice that we are astonished to see existing under the patronage of observers who have pretensions to exactness and precision. The facts just related completely remove this objection. No doubt, cases have been cited of the bites of leeches which took on the characteristics of venereal ulcers, but such, assuredly, would not have been the case if contagious matter had not been applied to them. Apply leeches where there is no contact of contagious matter, bleed syphilitic patients as often as you wish, perform any operation upon them, and you will have no chancres produced if there has not been virulent contact. If a patient suffering from constitutional syphilis contract a fresh chancre, and be inoculated from it, as also from a constitutional sore, the result is, that the inoculation from the chancre only gives positive results. To obtain the result with certainty it is necessary that matter be taken from a chancre at a certain period, that is, at its period of progression or of specific *statu quo*."

If Bru did not succeed in inoculating the pus of a chancre he either made an error in diagnosing that to be a chancre which was not, or he used pus taken at *the period of reparation*. For the author lays it down as an axiom, that *the pus of chancre is beyond doubt inoculable*.

This virulent inoculable matter may present all the varieties of pus or muco-pus, it may be either acid or alkaline, it may or may not contain animalcules. These different conditions, which appear contradictory, and which seem to have puzzled those denying the existence of a virus, are characteristics of the vehicle carrying the virus, and not of the virus itself. Putrid pus is not more virulent, and gangrene *kills* the



virus; but it is not injured by being kept, and may be preserved in like manner as the vaccine infection.

Inoculation has proved the truth of the different modes of contagion, which were heretofore contested by those who believed in the necessity of a physiological action, and of an orgasm of the part which was to furnish the contagion. The observations of Hunter have proved that patients were infected from contact with the seats of water-closets; and those of Fabricius Hildanus, that the disease was contracted from sleeping in sheets which had been used by infected persons. Whatever be the fact, no matter whether it be skin or mucous membrane, or in what region, a *slight solution of continuity of texture is sufficient, without the aid of any physiological act, to cause its certain production*. There are no refractory constitutions, as there are to variola and vaccina; all are affected alike by the point of a lancet charged with virulent matter.

We see chancre develop itself on all parts of the body without any special physiological state either in infecting or infected parts; and we find the parts most predisposed to receive its virus are those where the follicles are voluminous and numerous, in which the virulent matter reproduces and develops itself. An abrasion is necessary; it is the gate by which the poison enters; no special state of orgasm is required, but simply a traumatic state of the parts. Nothing is more common than that the physiological act of generation should escape without infection, whilst other acts, by no means physiological, are attended with the saddest results. Contact, the most complete, attended with the most voluptuous orgasm, the skin or the mucous membrane remaining entire, is unattended with any danger, whilst if there be but the slightest excoriation, the merest touch is followed by the saddest consequences.

In all affections incontestably contagious, we find a traumatic condition to be most active in producing the disease; and that, under ordinary circumstances, art can repeat what nature has effected. Thus, inoculated vaccina does not differ from ordinary vaccina; the inoculated variola does not differ from that spontaneously produced. Such also is the case with glanders, farcy, hydrophobia, malignant pustule, carbuncle, and hospital gangrene. This argument, considered analogically, appears of incontestable value. Why should the syphilitic virus be an exception to the ordinary rule?

But some contend that chancre is not the only contagious symptom attendant on syphilis: there are secondary syphilitic symptoms whose *contagion* the lancet has not as yet discovered; that, in fact, science has accumulated facts which have ap-

peared conclusive to a number of physicians, and which have caused others to doubt. Mucous pustules are looked upon by many syphilographers as contagious, and, consequently, to be transmitted. But when M. Ricord tested this by means of inoculation, having a due regard to all the circumstances by which error might be prevented, his experience has always been negative, although others have obtained positive results. He inoculated the pus from mucous pustules which were in the neighbourhood of the vulva of a young girl of Versailles, who constantly had connexion with the soldiers of the garrison, and he obtained positive results. Very much astonished, he re-examined more carefully the surfaces from which he had taken the matter, and he immediately found a chancre still at the specific period. Fresh comparative inoculations made with matter taken from this chancre, and from pustules at a distance, gave a positive result as regarded the former, and a negative for the latter. This experiment appeared to him decisive.

“ Amongst the cases that have been cited in which mucous pustules have given rise to syphilitic symptoms, no account has been given of the time which elapsed from the infecting connexion. It is always in three weeks, a month, two months, and even later, after contagion that the patients have presented themselves: so that not only is the true form of its commencement not evident, but still more, it is impossible to determine the true nature of the symptoms which were the source of the contagion.

“ Some forget, and others are ignorant that, by a succession of metamorphoses easy to be observed by those who take the trouble, the primitive symptoms (chancre) pass from the state of an *organ* of virulence to the condition of a secondary symptom, furnishing no longer specific pus. Where are the cases to be met with of individuals with mucous pustules who have transmitted the disease to another person that has fallen under observation the second or third day after an infecting connexion, and in whom the disease has appeared, as we see it appear, following on the contagion from chancre? In such cases does the disease commence by a chancre or by a mucous pustule? There is not a single incontestable fact which can answer this question.” But M. Ricord adds, that he is in possession of many cases where connexion was constantly had with those labouring under mucous pustules without infection taking place. Amongst the proofs brought forward to strengthen the opinion of mucous pustules being contagious, is their successive development upon contiguous parts of the skin to where they first appeared. The advocates of this opi-



nion forget to take into account one circumstance, namely, the *cause* of the appearance of the *first* pustule; that is the constitutional disease under which the patient labours, and which gives rise to their *successive* appearance. The consideration of the seat of predilection of these pustules cannot in any manner come to the assistance of the doctrine of contagion; in fact, if there be contiguity in the parts of the skin where they appear, it is necessary also to remark that the acrid secretions are more energetic on these parts; that the skin there has a tendency to undergo *mucous transformations*, as we see in the neighbourhood of the genital organs, of the anus, &c. "How would they explain, by contagion, the development of these mucous tubercles in both axillæ"?

Those who believe in these pustules being a primary symptom M. Ricord asserts have made an error in diagnosis, and adds; "It should be recollected that chancre at the period of reparation often takes on the appearance of a mucous tubercle, and that it sometimes undergoes a true metamorphosis and becomes, *in situ*, a secondary symptom, whose appearance and nature are those of a mucous tubercle. If then we were not witness to its commencement, or if we neglected to examine the proof given by the neighbouring glands, the remains of its ulcerated edge, the character of its base, so modified that it is difficult to make a differential diagnosis, more especially by those who observe but little and whose touch is but indifferently cultivated; and if we add to the above, certain peculiar situations where primary symptoms are not generally found and where also the transformation of chancre is easier and more rapid, viz., on the lips, the tongue, the nipples, we shall see how easy it is to be deceived. All those cases in which the disease has been transmitted by lascivious kissing, by the utensils of the table, by pipes, by razors, by masks, &c., have indeed no other origin. And how often have these been made an excuse to hide the sure cause!"

Many practitioners will scarcely credit the facility with which a chancre passes into a secondary state; they are led away by its situation, and when they see a chancre on the mouth, from that circumstance alone they believe it to be a secondary symptom; but here, as a primary symptom, they are of more frequent occurrence than might be believed. If mucous pustules are not transmitted by sexual intercourse, no more are they transmitted by other means.

The transmission of secondary symptoms from the nurse to the child, and *vice versâ*, is of special importance. The fact of this transmission is generally admitted. Hunter, however,

denied it, and many able observers agree with him. This question requires special attention; it is a question of public hygiene; often a medico-legal one, as in case of fraud, dishonesty, or avarice. It is, therefore, important that we should be upon our guard against all causes that might lead us into error, and not receive with implicit faith the word of those whose interest it may be to deceive us.

If we consult the archives of science, and seek the basis of the opinion upon which the contagion of secondary symptoms conveyed from the child to the nurse, and from the nurse to the child rests, we are astonished at the little value of the facts, and are surprised to see with what little evidence the most learned are content. "M. Bouchut, for example, in his memoir, recently published in the *Gazette Médicale*<sup>a</sup>, has gathered all the facts which seem to him the most conclusive, and what are they? Read this essay, otherwise interesting, and you will be convinced with me, that the greater part of the facts are not admissible; that the observations which would appear the most conclusive are wanting in essential details, and are so incomplete that M. Bouchut himself is forced to admit it, finishing by stating that his conviction is more moral than scientific."

M. Ricord has seen nurses and the nursed, who were mutually accused as having communicated the disease. Most frequently he has been able to establish the fact that the *point de départ* was a primary symptom, occurring in either one or the other, sometimes in both; again, he has been called too late to determine, as in cases when the child was not presented to him until it had been with the nurse for five or six months, or even longer. He has had for many years the care of nurses in the "Hôpital du Midi," and amongst them often some affected only with simple leucorrhœa; and he has often given them children to suckle affected with secondary symptoms, who were sent from the "Maternité," and he has never seen these nurses become infected. To reverse the case, the nurses affected with well-marked secondary symptoms have been given children to suckle who had been sent to him, it having been believed that they were suffering from syphilis, when they were only attacked with simple eruptive diseases, such as eczema, impetigo, or varieties of porrigo, and these infants have never become infected. His learned and laborious friend, M. Nonat, who for a long time had a similar charge, has arrived at the same conclusion. From his private practice he also gives a very remarkable case of a child born with hereditary syphilis, whose

<sup>a</sup> April 20, 1850.



mouth was extensively ulcerated; and though suckled for eighteen months, the nurse remained perfectly healthy. From this, he adds, we learn how necessary it is to examine all sides of the question, if we do not wish to deceive ourselves, or be deceived.

The nurse, when she takes a child, may be under the influence of a syphilitic diathesis, and which has not as yet appeared. Nurses are not examined with sufficient care; and even if they were, we might be deceived, for the diathesis may exist when all trace of primitive or secondary disease has disappeared, especially when the ulcer was in the neck of the uterus. He also affirms that the health of the nurse's husband is not a sufficient assurance, for he has long known how to value the "pure and simple manners of the country!"

The child may be born with an hereditary syphilis; and both nurse and child may as yet show no symptoms of disease. For the child may be born apparently healthy, but after some weeks or months, secondary symptoms may appear. These may become manifested in the child during or after a similar manifestation in the nurse. So that the first in whom they appear is accused as having given the disease to the other, if both are not simultaneously accused, which frequently occurs. They may be both in the wrong; there is a simultaneousness and coincidence, and by attention and patience we may arrive at the truth.

"It sometimes happens that the nurses contract syphilis whilst they are suckling, and the contagion may enter by many ways, most usually by the genital organs. This is not an unfrequent occurrence amongst nurses who come to Paris; under such circumstances the nurse infects the child by means of her fingers, contaminated with the virus; they even infect their husbands, and in such cases the blame is always thrown upon the Parisian baby, '*ces enfans pourris*,' so say these chaste nurses. The poor rustic husband is extremely candid as to how he was infected. The nursed child is the source of all his misfortunes!"

The nurses frequently inoculate their own nipples by their contaminated hands, and so the child becomes infected; again, a nurse may be infected by a person who draws or sucks her breast, and so contaminate the child.

A child may contract chancres at the time of birth, if the mother be then affected. This is of rare occurrence, but nevertheless possible. These chancres which can easily be confounded with secondary symptoms may become the infecting cause for the nurse, and are then looked upon as secondary symp-

toms. What may give an appearance of truth to this is, that, being called to see them too late, the chancre has healed upon the mother; no trace is left, and if the *legal* father has any recollection of a blennorrhagia in his early youth, it is immediately put down as hereditary taint!

Children at nurse may be infected by strangers who are not suspected. They may then infect their nurses, who before they perceive the illness of the child wonder at their own disease, and by this time secondary symptoms have appeared in the child, for at that early age they always develop themselves with extreme rapidity. The *point de départ* is thus masked, and hence another source of error.

The child may be handled by a visiter who is diseased, and so be infected; and thus the mother, the *legal* father, and the nurse may be perfectly healthy, yet the child be affected with constitutional syphilis. "How reserved, then, should we be, and what prudence, caution, and attention should we bestow upon the contagion of secondary symptoms, before we acknowledge it as a demonstrated fact."

M. Ricord does not, however, absolutely deny the possibility of the transmission of the contagion of secondary syphilis; but says that it is not yet proved by observation, and that, if ever it be so, inoculation alone can demonstrate the fact. The late Dr. Wallace, of Jervis-street Hospital, in this city, published two cases of what he believed to have been successful inoculation from secondary symptoms; but M. Ricord, having analysed them, does not believe that they will lend much assistance to the opinion that secondary syphilis is contagious. When on a visit to England, he was shown, in St. Bartholomew's Hospital, men and women affected with secondary symptoms, who were said never to have had the primary disease; but being a sceptic, he took the liberty of making an examination for himself, and found a primary sore where it had not been sought for. To return to Wallace, he remarks, that it was curious that he, who had made so many inoculations, had succeeded in but two. These, then, were exceptional cases; but he can allow of no exceptions,—either secondary symptoms are inoculable, or they are not. Ricord, with M. Puche, has again lately made many experiments by inoculation of secondary symptoms and they have always found the results to be the same, viz., negative. These experiments having been always tried upon the individual himself, it may be said that secondary symptoms are not inoculable upon those already affected with them; yet they might be perfectly inoculable on a healthy subject. That objection may be made by believers in his doc-



trines, but he does not think it can be urged by those who are directly opposed to him, whose doctrine is, that so far from constitutional syphilis hindering a fresh contagion, it is only necessary to make a simple wound upon a syphilitic patient, and immediately it will take on the venereal character.

As to the transmissibility of the syphilitic virus to animals, and the experiments of M. Auzias-Turenne, our author denies that they are capable of receiving the true syphilitic virus; secondary symptoms never having succeeded to inoculation in them; and he believes that they are merely the receptacle for the time being of the poison; that the virulent pus inoculated acts only as a cauterized point, irritating and causing supuration, but not combining with the tissues. The opinions of M. Cullerier on this subject quite coincide with those of our author.

Before advancing farther with his subject, M. Ricord wishes us to receive the following proposition as unshaken:

“*A chancre (primitive ulcer) at its period of progress, or of statu quo specific state, is the only source of the syphilitic virus (morbid inoculable poison)*”.

Let us now study the pathology of development of chancre.

“If we make a puncture with a lancet charged with virulent purulent matter, this puncture, which ought scarcely to bleed, soon reddens and becomes prominent, its summit is raised by serum, which immediately becomes turbid, and takes on the character of pus. Thus, puncture, redness, papula surrounded by an areola, vesicle, vesico-pustule, and finally pustule,—such is the constant succession of phenomena produced by inoculation. This succession invariably takes place, ending in a well-marked ecthymatous pustule.”

This pustule is often depressed in its summit, umbilicated at the point which corresponds to the puncture, and upon which we most generally perceive a very small drop of dried blood. If the pustule be not broken, the pus which it furnishes becomes dry, and it terminates in the formation of a brownish, greenish, or blackish conical-shaped crust. This crust increases from its base, for it covers an ulcer the circumference of which tends to increase. In this increase of ulceration under the crust, the epidermis, the areola which surrounds it, and the edge are successively raised up by the suppuration. These, again, arise in turn to form a new disc of crust, whilst a new areola forms itself at the circumference, and so on.

The red circle (the areola) which surrounds the crust is generally tumefied, and embraces it as a watch-case does the glass; nevertheless, as there is always increasing ulceration and

new deposit, the circumference of the crust is always softer than the centre, and is in general not very adherent. Sometimes the crust or scab is early formed; at others, the pustule remains entire for a greater or less space of time. This pustule cannot acquire a very great size; it is often at its commencement not larger than a small bean; later, its surface may equal that of a silver fourpenny, or even of a shilling, but it is by no means rare to see it attain much greater dimensions. The pustule then presents these transitions that we so often observe in other forms, and which gives the appearance of rupia, whether before the formation of the crust, or when the crust is formed.

If the pustule be broken on the second or third day, as in cases of rapid evolution, if it be broken later, as in ordinary cases, or if the crust becomes detached, there is found beneath an ulceration affecting the entire depth of the skin, perfectly round, and its edges formed as if they had been cut out with a punch. The edges of this ulceration are a little œdematous, swollen, dentated, and everted, and are surrounded by an areola which constitutes the margin; they are covered with a diphtheritic layer, that is, a peculiar adherent pyogenic membrane. The surface of the ulcer secretes a badly matured pus, sero-sanguineous, often reddish, and loaded with organic detritus. This is the virulent inoculable pus. When the surface of the ulcer is cleansed, we find a better marked diphtheritic layer than on the edges, and which is also formed by a special pyogenic membrane, of a gray colour, lardaceous in appearance, and which cannot be detached. The bottom of the ulceration lies upon a base more or less thickened and swollen, according to the progress made by the ulceration; a progress which is especially determined by the nature of the soil in which the *syphilitic grain* has been sown. The ulceration which has been described, and whose tendency is to increase, may be arrested at the extent here described, there remain stationary for a month, six weeks, or even longer, or continue to increase very considerably, and thus present important modifications.

In the numerous inoculations which our author has performed, the following has been the course almost invariably run:—Evolution always appearing at the place of puncture; the constant production of an ecthymatous pustule, the ulcerated excavation of which presents the pathognomonic characters and types of chancre; the ulceration having a constant tendency to increase, or remaining in a special *statu quo*. Thus, then, artificial inoculation has overturned all the theories which



have been professed and handed down for ages; not alone the physiology of Broussais, but the doctrine of physiological contagion, the invention of a later date. Can the theory of incubation be sustained in the face of the results of inoculation; results that can every day be repeated, for it is not an unique or exceptional fact that is here detailed, but numerous identical facts, always giving rise to the same phenomena?

Like a grain of seed, the syphilitic virus springs up where it had been sown; and like a *ferment*, the parts which are first touched by it first ferment. All this happens with greater or less rapidity, as has already been said, according to the qualities of the soil, or their aptitude to ferment; but all this takes place invariably at a point at first extremely circumscribed in a well-defined sphere; the boundary of which, at a later period, we can scarcely limit.

The non-existence of a period of incubation, so truly and so logically pointed out, is not as yet admitted; old prejudices have the force of law, and it is not easy to overcome them.

The advocates of incubation, and those who believe that if they did not allow its existence they would compromise the virulence of syphilis, have urged the argument, that if instantaneous and uninterrupted effects are obtained by artificial inoculation, if a local evolution be not observed, if there be an apparent silence of the system, and nothing which betrays a general participation of it in the syphilitic contamination, it is because an organism already impregnated and infected has been acted on; the inoculation has been performed on those who had been already contaminated.

In addition to what has already been observed as to the effect of wounds and operations on syphilitic patients, there is another answer to this objection, namely, the effect of inoculation on a healthy individual. In them, the results of inoculation were identical with those of the others, that is to say, immediate action, uninterrupted evolution, and production of an ecthymatous pustule. "But does artificial inoculation always give rise to the same uninterrupted series of phenomena? Are there not cases in which, between the inoculation and the manifestation of the symptoms, there is an interval, a time of inaction, as in the inoculation of the cow-pock? In contagion contracted in the ordinary manner, does it not appear that there always is a period sufficiently long between the action of the cause and the manifestation of the effects? Yes, beyond doubt, and these are the cases which might justify, in some degree, the theory of incubation. But if we take pains to examine these facts with attention, we shall see that they have been

incorrectly appreciated. Let us endeavour to reduce them to their proper value, and to bring them under the preceding established laws. I have said that such cases have never come under my observation in my numerous experiments, which have always been made in public. This is evidently owing to the uniformity of the proceeding which I employ. My colleague, M. Puche, has arrived at the same conclusion, and has but once or twice seen the symptoms appear on the second or third day after the puncture. Indeed, all who have studied the inoculation of syphilis are well aware that when the evidences do not succeed immediately, the result is negative. Nevertheless, we can easily conceive that when the puncture made is too superficial, the virulent pus deposited upon surfaces which have been scarcely denuded will necessarily take a longer time to make an impression on the part, and to produce its effects. This I have observed in the case of M. Robert Welz. The first puncture made by himself was too superficial, and produced no effect for a few days. So that in this case there was a something which might be said to resemble incubation. But the second puncture, which was made by myself, followed the regular course." Those who believe in the influence of the syphilitic virus upon the entire system will no doubt say, that the first puncture made here was slowly developed, because the system was not sufficiently impregnated. The effects of the second puncture, on the contrary, had been rapid, because the virus had pervaded the entire system. But as M. Ricord observes, M. Welz made also a third puncture on himself, which being, like the first, too superficial, its results were but slowly developed.

Here, then, is the key to incubation. It is easy to comprehend, with its aid, how, in cases of contagion, as usually acquired, the virulent pus deposited upon surfaces more or less abraded, and consequently fitted to receive the poison more or less quickly, become affected with greater or less rapidity. Daily observation, and also, as M. Ricord observes, the recent experiments of M. Cullerier, have demonstrated in the most convincing manner that virulent pus can remain in contact with healthy tissues without causing any alteration in them, or becoming altered itself. It is also well known that surfaces constantly bathed in virulent pus, which is both acrid and irritating, become excoriated before being specifically affected; and that these surfaces finally become eroded, and, being placed in a susceptible condition, become inoculated. Vesication, to be produced, requires a greater or less degree of time, and so, before the specific effects can be manifested, incubation is simulated. "For example, let virulent pus be deposited in a fold



of the vulva, in the vagina, the prepuce, or the interior of a follicle, and it is only after a certain lapse of time, the pus having passed through the different successions above-mentioned, that the effects of inoculation become evident. There is no special pleading here, the evidence is physical and material, and it can be demonstrated daily to those who are not *blind*, or who do not wish to be convinced.

When inoculation fails, the puncture sometimes becomes a little inflamed, but almost instantly disappears; it must, however, be acknowledged that here, as in cow-pock, we occasionally meet with *false pustules*. Their appearance, if superficially examined, may induce error. M. Puche frankly acknowledges that he has been deceived by these *false pustules*, when he formerly inoculated the muco-pus furnished by balanoposthitis. So that, at the present time, he does not place the same value upon the facts contained in his *memoir* as formerly,—an observation made by our author on his authority. This confession is an answer to the great stress which has been laid by some of the author's opponents upon the inoculability of the muco-pus of non-ulcerated balanoposthitis, wishing to prove from this circumstance that chancre is not the sole lesion which furnishes pus capable of inoculation, and that blennorrhagia which inoculated itself might not arise from an ulcerated surface.

These *false pustules* are but slightly developed; they are most generally but simple bulb-like elevations, beneath which is found a superficial vesication of the skin. It is not a complete disorganization of the dermis, with loss of substance, such as is observed in true inoculation. In some rare cases a deeper degree of inflammation may be present, and produce an appearance similar to furuncle; but its progress is always, and even in these cases, extremely rapid, its duration ephemeral, from three to five or six days, at most, and the cure following as quickly without the intervention of any treatment. M. Ricord confidently affirms, that when inoculation is successful, chancre is always developed as a pustule. This is, he says, incontestible, and the pustule can always be reproduced at will, and without failure. But he does not pretend to say that it always occurs in the same perpetual, immutable form. Nothing would be more fallacious, as daily observation proves that its appearance and course vary in different cases.

Under the most ordinary circumstances chancre commences as a primary ulceration, superficial or deep-seated. The primary sore does not always destroy the entire substance of the skin or mucous membrane. Thus, upon the semi-mucous cover-

ing of the glans or prepuce the ulceration may be so superficial as to lead to the belief that it is a balano-posthitis, and thus justify certain inoculations which have been made. Primary ulceration is produced if the virulent pus has been deposited either upon a surface recently denuded, or upon a bleeding wound, or, what is more rare, upon suppurating wounds. M. Ricord has sometimes seen chancre appear even as an abscess: the possibility of such an occurrence has been denied by some. The bites of leeches often become inoculated, and present the ecthymatous form, it is true; but it sometimes happens that the virulent pus inoculates the bottom of the bite without effecting its edges, which may then become united, and thus inclose the virus, when a small virulent abscess of the subcutaneous areolar tissue is thus formed, which, as soon as it opens, or is opened, constitutes a chancreous sore. This fact is to our author one of every-day observation, and from this theory of simple abscess as a first stage or period of chancre, an argument in favour of the existence of primitive bubo (*bubo d' emblée*) has been advanced, which he does not acknowledge as true, and which is contrary to his theory. But whatever may be the variety in the first appearance of chancre, it has no influence upon the ulterior form of ulceration. This point is of importance, for on it hangs the question of a unity or plurality of syphilitic poisons, a question still sufficiently obscure, or rather obscured by the vague and unprecise manner in which facts have been recorded.

In M. Ricord's experience, when an inoculation is made upon the patient himself, the ulceration which ensues assumes the form and presents the same varieties as the primary sore which had furnished the pus for inoculation. Thus, if the pus be taken from a phagedenic chancre, the ulceration will assume a phagedenic character; if from an indurated sore, it will take on an indurated form, &c. "But in cases where a sound person has been inoculated from a diseased one, is such always the case? Of this we are ignorant, for in the inoculations which have been made by other experimenters, they have neither noted the form of ulceration from which they had taken the matter, nor the form of ulceration which had followed; being contented, as regarded both one and the other, with the expression—chancre followed. So that, inoculations so practised do not throw much light on the question."

"The question, then, of a plurality of poisons, so much insisted on by some English surgeons, is far from being satisfactorily settled. At present, therefore, we have a right to believe in the existence of but a single virus, and that the ulterior



conditions are determined by the condition of health of the individual in whom they may be developed.

“ In fine, the great varieties presented by chancres in their progress may be defined as, simple chancres; inflammatory chancres, with a tendency to gangrene; phagedenic chancres; and indurated chancres.”

Observation teaches that under the abuse of ardent spirits, and especially during the warmer seasons of the year, simple chancre rapidly becomes inflamed, and that inflammation in certain regions of the body, more especially the genital, gives rise to œdema, which rapidly runs into gangrene. As regards the other varieties, phagedenic chancres, pultaceous, diphtheritic, serpigenous, &c., they are produced by certain hygienic conditions, such as unhealthy habitations, bad living, want of cleanliness; the improper employment of mercurial ointment, or the use of it in a rancid state; certain diatheses, as the tubercular, the scrofulous, the herpetic, and the scorbutic; under those conditions which favour the production of hospital gangrene; and, as we shall afterwards see, the influence of an anterior syphilitic diathesis.

M. Ricord expresses his belief that there is but a single virus, and considers the cases related by Bell and others to prove the contrary, as being but mere coincidences. Having taken it for granted that there is but one virus, he next proceeds to consider its most important variety, viz., indurated chancre. The fact of induration being attendant upon chancre has long been known, and some have even pretended that they could find traces of this knowledge in the writings of Galen, which does not in the least astonish him, as he believes syphilis to have had an ancient origin. But what is most certain, is, that after the great epidemic of the fifteenth century, this symptom was early described by syphilographers. It especially did not escape Jean de Vigo. However, the honour of the discovery has been given to Hunter, and the indurated chancre even bears his name. But yet Hunter does not require this symptom should be a constant attendant on chancre, and in this he was right, for it is not an attendant upon the majority of primary sores. Nor has he made it the condition of constitutional infection.

Syphilographers, after Hunter's time, even Bell, have not been acquainted with the full value of induration as an attendant on chancre, and since the time of the latter they do not seem to have paid much attention to it. M. Lagneau, in his work on syphilis, does not seem to think it of much consequence; yet M. Lagneau has recognised, with Bell and others, that chan-

cre could have a pustular stage, but there is a singular confusion throughout his work between the chancres which he calls *primitive*, and those which he calls *secondary*. In all cases induration with him goes for nothing. According to M. Caze-  
nave all chancres are *primitive, secondary, or secondary primitive*, a distinction the author declares he cannot understand; but induration, that symptom of so much consequence, does not seem to exist in his ideas.

All chancres do not become indurated; in the present day it is undoubtedly the smallest number which do so; and if M. Ricord's doctrines are correct, this number will still more diminish. But what is the individual cause, the necessary ulterior condition to the insertion of the virus which shall cause the chancre to become indurated? This is one of the most interesting problems that can present itself in the study of syphilis, and its solution is equally difficult. We have no clue to it from the age, the sex, temperament, or habits. Anterior or concomitant disease foreign to syphilis, or the special remedies employed by the patient, give none. So far, then, we have nothing to fall back upon but the universal cause, idiosyncrasy. We find in certain individuals that a first chancre does not become indurated, whilst the second does, and that those contracted afterwards do not. What, then, is the mysterious cause? One of the reasons of these differences has passed unperceived up to the present time. "Let us then seek it in the laws so general and so uniform in virulent diseases. Let us look for it in the striking analogies which exist between small-pox, cow-pock, and true pox. For example, the cow-pock may fail the first time. This arises from a want of aptitude in the constitution to receive it, of the cause of which we are ignorant; but should it happen to succeed, the consequent unsucccess of a new vaccination is explained. The effect of the first vaccination is not as yet exhausted. Modern observation has proved that a certain space of time is necessary to elapse before the constitution is again susceptible."

Here, then, is the fact that long experience has taught our author, and which has also been observed by M. Puche and Diday; and from which he deduces this *general rule—a patient who has the first time an indurated chancre, never has a second*. As in small-pox and cow-pock, it is probable that this law may have exceptions; and it is even desirable it should, for such being the case, we may yet arrive at the destruction of the syphilitic diathesis. But beyond doubt these exceptions are of rare occurrence.

Where there is indurated chancre, there must of necessity be



constitutional syphilis. With induration the syphilitic disposition, as Hunter calls it, is acquired. There is, therefore, a diathesis, a special, peculiar disposition, in virtue of which ulterior conditions are produced—a disposition, temperament, or diathesis, that cannot be doubled or tripled no more than an analogous disposition for cow-pock. The indurated chancre is to syphilis what the true variolous pustule is to small-pox, what the true vaccine pustule is to cow-pock. Unindurated chancre is the pseudo-pustule; it is a false vaccination.

The principal character of this ulcer being induration, at what period of its existence does this condition set in? The answer to this question is important; for the moment the change has taken place the disease is no longer local. But it is not always easy to determine this, as patients do not in general present themselves for some time after contagion. This want of attention on their part may, in the majority of cases, be accounted for by the indolence of this form of chancre, its progress being slow, and suppurating but little, they do not perceive it till late, or it even escapes their attention, and so may be explained the doctrine of those who believe in a *primary* constitutional syphilis. With the nearest approach to certainty which facts afford, it may be said that induration is never manifested sooner than the third day; always within the first or second week, and if it does not take place within three weeks, the chancre will not become indurated, certain conditions may deceive us, and lead us to believe in induration occurring at a later period. Let us then examine what they are.

“It is not always easy to recognise specific induration, whether it be the effect of contagion acquired in the ordinary manner or of artificial inoculation, the infected part being surrounded by common inflammation, in which the specific induration is masked for a certain time; and it is only as the simple swelling, œdematous, subphlegmonous, or phlegmonous inflammation disappears that we are able, as it were, to exhume the specific induration, and it is thus the error has arisen of induration being supposed to occur at late periods after infection.

“Certain local applications, as caustics, sometimes give rise to a factitious induration, which may be produced at various periods, and which may deceive. These factitious indurations may even complicate the specific, and render them liable to be mistaken. It has been urged, that you may produce an ulcer exactly resembling a Hunterian chancre, by the application of corrosive sublimate,—no doubt resembling it, but not identical. Solution of corrosive sublimate, of chromate, of potash, or of acetate of lead, may give rise to symptoms so analogous to in-

durated chancre, that surgeons unskilled in observation may mistake them, and hence has arisen the belief that indurated chancre is not necessarily followed by constitutional symptoms. There is also another cause of error into which some have fallen, viz., mistaking a second or new chancre, contracted upon the induration left by the first, for an indurated chancre."

Some believe that all primary symptoms may be followed by secondary affections; and if there be one more privileged than another, that it is blennorrhagia. It must also be recollected, that an indurated chancre may become phagedenic; and if the disease was not seen at the commencement, it might be believed that secondary symptoms followed on a phagedenic ulcer without induration. Again, induration is not always well developed; it is sometimes superficial, and it requires some skill to be able to discover it on the skin or mucous membrane. It sometimes, too, only gives the sensation of a fold of parchment. The induration generally extends to the entire base of the ulceration; but in some rare cases it extends only to the edges, and is then annular. "When there is no complication the induration ends abruptly, and is raised above the neighbouring healthy parts, constituting then a variety of the *ulcus elevatum*." We must, here, however, inform M. Ricord, that this is not the nature of the ulcer described by English writers as the *ulcus elevatum*.

Induration presents itself sometimes under the appearance of a crust, when the plastic infiltration to which it is due does not take place in homogeneous tissues, and, therefore, experiences a greater resistance in some points than in others. Induration is generally developed slowly and gradually; sometimes irregularly; so that at first it is but slight, remaining stationary for a considerable space of time, and then increasing rapidly. Again, after having been greatly diminished, or even having disappeared, it is very liable to be regenerated; and, under these circumstances, it is by no means rare to see it more extended than at first.

The length of time that induration may exist is not limited to any fixed period. In some cases it may entirely disappear in a month, whilst in others it may exist for months, or even for years. At the base of the glans the induration is extremely well marked, and also remains for a considerable period. On the glans itself, the neck of the uterus, and the annular orifice of the vulva, it is often but little developed, and difficult to discover. In the urethra, especially in women, it is very ephemeral. In the anus and vagina, much care is required to guard against mistake. Upon the tongue and lips it sometimes re-



mains for a considerable period. In all cases the ulceration has been long healed before the induration begins to disappear.

The indurated ulcer is generally single, and its ulcerative or specific stage is soon limited spontaneously or by the interference of art. Sometimes, however, it spreads considerably, and becomes excavated; and looking at it gives the idea that there had been great loss of substance. When cicatrization takes place, scarcely any trace remains, the plastic exudation having defended the neighbouring tissues. This circumstance is of considerable importance, for it is not the most numerous or deepest-formed cicatrices which are followed by constitutional contamination. Induration, then, is the certain proof of the constitution being infected. It is the passage from the primary to the secondary stage. In fine, indurated chancre is that variety which most quickly loses the principal characteristic of primitive sore, viz., the power of furnishing an inoculable pus. It may also be regarded as an indication for treatment, for it is one of those symptoms which most readily yield to mercurials. There are circumstances under which, however, the induration resists. It is then most frequently not a specific induration that we have to treat, but an organised tissue which succeeds it.

“ Specific induration is, anatomically speaking, situated in the skin and mucous membranes, the subcutaneous, and sub-mucous tissues. But it would appear that it has an especial predilection for the lymphatic capillaries, as, where they are best marked, there do we find it most developed. The microscope has not as yet discovered any peculiarity of its essence or intimate nature.”

M. Ricord next brings under consideration the manner of cicatrization of chancres. The only point in his observations on this head that we shall notice is, that after a chancre has infected the constitution, it may itself undergo a transformation, and finish by becoming a mucous pustule, thus confirming the fact noticed by some who, however, from the want of analysis, have not recognised this change, and have admitted that these symptoms may be either primitive or secondary, and that under all circumstances they are contagious; a view denied by our author.

The following he especially insists upon, namely, that although a chancre may have had repeated attacks of ulceration during its existence, *once cicatrized, it never returns*. If after complete cicatrization a fresh chancre should appear furnishing pus which is capable of inoculation, it may be affirmed that it is the result of a fresh contagion. Mercury, regarded by some

as the touchstone, and especially, as the author remarks, in England, where its effects are used as the foundation of the division into true and pseudo-syphilis, is often found to be deceptive, curing those ulcerations which are not syphilitic, and aggravating those that are. Having found how impossible it is to come at a true history of each case, and how much, in consequence, the difficulty of the diagnosis is increased, M. Ricord lays it down as a rule, but one contrary to the opinions of many, that the sole, positive, unequivocal, and pathognomonic symptom of chancre, during its period of progression or of *specific statu quo*, is to be found only in the pus which it secretes, and in its capability of being inoculated.

But here, with the twenty-first Letter, we must stop for the present, as we are anxious to complete our analysis in as full a manner as that which we have hitherto followed. We shall continue and conclude it in our next Number.

*Principles of Physiology, General and Comparative.* With 321 Wood Engravings. By WILLIAM B. CARPENTER, M. D., F.R.S., &c. Third Edition. London: Churchill. 1851. 8vo, pp. 1098.

*A Manual of Physiology ; including Physiological Anatomy.* By WILLIAM B. CARPENTER, M. D., &c. Second Edition. With 190 Illustrations. London: Churchill. 1851. Foolscep, 8vo, pp. 616.

How many noble examples see we in the medical profession of men who devote a life to patient toil and unceasing labour in investigating the intricacies of our art, with the view of illustrating matters previously obscure, or of throwing additional light on those already partially understood. There is, it must be admitted, an innate spiriting in the mind of man which carries him onwards through any work he may have embarked in, careless of the results as regards present or future pecuniary advantage to himself, anxious alone to arrive at knowledge. Love of fame, some call this; some, ambition. But we believe that either, although often more or less an incentive, is, in respect of the literary labours of the physician, altogether insufficient to stimulate to the exertions which we daily witness, and with proofs of which the history of medicine abounds. There is truly an ennobling feeling in the practice of our "godlike art," at least to him "who practiseth it aright;" and to its effect we would rather ascribe the "morn of toil and



night of waking," which are the chosen lot of so many of its professors.

In our own times, Dr. Carpenter affords an illustration of how much one man can do for the advancement of knowledge in his own department. An unwearied writer, a successful author, a laborious investigator—his works have done much to place medicine in the scientific position which the opening of the second half of the nineteenth century finds her occupying. His inquiries have been applied chiefly, as the titles of his works, which we are now noticing, show, to a special, but probably the most important branch of pathology, one on which a correct system of therapeutics must be based. But he has also, in the important editorial position which he has now for some years occupied, been enabled to influence, by precept and by example, the cultivation of the medical sciences generally.

The new editions of two of his works, which are now before us, bear evident marks of his constant application and careful habits; but the *General and Comparative Physiology*, of which this is a third edition, especially deserves our commendation. Without pretending to it, it is an *Encyclopædia* of the subject, accurate and complete in all respects—a truthful reflection of the advanced state at which the science has now arrived. As the author remarks: "The discoveries in which the physiological researches of recent times have been so fertile," have rendered the present volume a new work: "since, out of 1080 pages, of which it consists, not above 150, or less than one-seventh, belong to the previous edition."

The following extract from the Preface, which we feel bound to lay before our readers, is a truthful illustration of the few remarks with which we commenced this necessarily brief notice:—

"The whole of the author's disposable time has been devoted to the present work for nearly two years, not merely without the anticipation of the slightest pecuniary reward, but under the certain loss involved in the relinquishment of other literary engagements of a remunerative character; and the sale of the entire edition will not do more than remunerate his liberal publisher for the very large outlay which has been incurred in the production of the work, and more especially for the beautiful series of illustrations with which it is embellished, most of them having been executed expressly for it by Mr. Bagg."

To Mr. Churchill, perhaps the most extensive medical publisher in the world, we have often expressed the obligation which the profession is under, for the getting out of his books;

and we do not think that any superior to the present has ever issued from his press; we, therefore, fully accord with the above remark respecting him. For Dr. Carpenter we feel assured that he has his own reward, and that he needs not our praise to urge him onward in his useful career. "The monuments of wit and learning are more durable than the monuments of power or of the hands, and the images of men's wits and knowledge remain in books, exempted from the wrong of time, and capable of perpetual renovation. Neither are they fitly to be called images, because they generate still, and cast their seeds in the minds of others, provoking and causing infinite actions and opinions in succeeding generations. So that, if the invention of the ship was thought so noble, which carrieth riches and commodities from place to place, and consociateth the most remote regions in participation of their fruits—how much more are letters to be magnified, which, as ships pass through the vast seas of time, and make ages so distant to participate of the wisdom, illuminations, and inventions, the one of the other?"<sup>a</sup>

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*On the Pathological Anatomy of Bronchitis, and the Diseases of the Lung connected with Bronchial Obstruction.* By W. T. GAIRDNER, M. D., Pathologist to the Royal Infirmary of Edinburgh. Edinburgh: Sutherland and Knox. 1850. 8vo, pp. 82.

THE opportunities enjoyed by Dr. Gairdner since his appointment to the office of Pathologist to the Royal Infirmary of Edinburgh have been most industriously and assiduously employed; and the many interesting contributions to medical literature, especially in its pathological departments, which have been already made by this zealous observer, prove him to be, in every way, the worthy follower of his predecessors, Home, Reid, and Bennett.

The addition to the staff of a large clinical hospital of a distinct officer, to whom the care of conducting the pathological examination of each fatal case is intrusted, is the recognition of a great practical want, which cannot but be felt by all who are acquainted with the absorbing duties of a clinical teacher, and the fatiguing routine imposed on him by the service of even a limited number of medical or surgical wards. Indeed we have no hesitation in stating our clear and de-

<sup>a</sup> Bacon's Advancement of Learning.



cided conviction, that the double duty of clinical investigation and accurate *post mortem* examination of important cases cannot be performed by the same individual, in anything approaching to an efficient manner, or in a way at all consistent with the strict requirements of scientific research. We have on former occasions forcibly called attention to this great want in the medical arrangements of our Dublin Hospitals; and we take this opportunity of doing so again, hoping that ere long an effort may be made to fill this deficiency, and knowing, as we do, that there are hands and hearts able and willing to undertake such important duties, and anxiously desirous to give their best energies to such an interesting sphere of action.

The researches of Dr. Gairdner, which now appear in the form of a separate *brochure*, originally laid before the Medico-Chirurgical Society of Edinburgh, were subsequently communicated to the Monthly Journal of Medical Science, in whose pages, no doubt, many of our readers have already become familiar with the views of this pathologist. It is only in this collected form, however, that we now become entitled to bring them under critical notice. The field which our author has chosen for his investigations is one that has been already trodden by many labourers of distinction since the time of Laennec; nevertheless, we find that his industry has been rewarded by the discovery of some interesting, and, in a measure, novel pathological facts.

The several phenomena of partial, temporary, and permanent obstruction of the bronchi have been made familiar to us by more than one observer; but it is in relation to the direct connexion of these conditions with *collapse of the pulmonary texture*, that Dr. Gairdner brings the subject now before us. His attention appears to have been directed more especially to this morbid condition during the Edinburgh fever epidemic of 1847, when it was frequently observed,

“ That the lungs in persons of all ages were the seat of a form of condensation, characterized by the absence of the friability and granular appearance on section, of pneumonic consolidation, and also by the peculiarity of the microscopic elements, the large granular cells which form so common an ingredient in ordinary red hepatization being either very sparingly or not at all present. The condensed portions were usually scattered over both lungs, and often very limited in extent, being accurately circumscribed by the margins of the lobules.”

A remarkable case occurring some time after, in which *bronchial obstruction and collapse of the pulmonary air-cells were*

found co-existent, both lesions being limited to a very small and circumscribed space in the lung, appears, naturally enough, to have suggested the relation of these two conditions to each other as cause and effect, and to have led to the prosecution of further researches, for the purpose of solving this important problem<sup>a</sup>. Our author distinguishes two forms of bronchitic collapse, the diffused and the lobular. The latter condition is that which has been so frequently described under the name of lobular pneumonia (an error shared, it appears, by MM. Barthez and Rilliet); but the results of inflation, as shown in the experiments of Bailly and Legendre, prove its real nature, and sufficiently distinguish it from that inflammatory condition, exhibiting at the same time its greater pathological affinity to the *atalektasis* of Jöerg. The reader will find in Dr. Gairdner's essay a tolerably extensive historical and critical notice of the several writers who have treated of this subject, together with a number of cases from the Register of the Royal Infirmary, all of which will well repay perusal.

Under the head of the *mechanical effects of obstruction*, we find some interesting and ingenious observations in reference to the theory of the causation of emphysema propounded by Laennec, and which has received such general and almost unqualified adhesion from the majority of subsequent writers. This theory, which refers the pulmonary dilatation to an accumulation of air behind an obstruction of a bronchial tube, rests on grounds now known to be false. Thus, it was taken for granted that the expiratory muscles possessed much less force than the inspiratory, while the experiments of Hutchinson and Mendelsohn have established that the forced or muscular expiratory act is about one-third more powerful, as measured by a pressure gauge, than the extreme force of inspiration<sup>b</sup>. The data of Laennec's hypothesis being thus shown to be quite erroneous, the theory falls to the ground. The experiments of Mendelsohn and Traube, in which leaden shot and pellets of paper were forced into the bronchi, and which resulted in these tubes being found after death red and void of air, show, on the contrary, that an obstructed bronchus leads rather to the condition of collapse than to that of emphysema. Dr. Gaird-

<sup>a</sup> Dr. Gairdner states, that at the time his first observations were made, he was unacquainted with the remarks of Dr. West. The literature of this subject is now pretty extensive: the latest writer cited by Dr. Gairdner is Dr. Caspar Friedrich Fuchs, who has published an essay entitled "*Die Bronchitis der Kinder*," Leipzig, 1849.

<sup>b</sup> See Dr. Reid on Respiration, *Cyclopædia of Anatomy and Physiology*, part xxxii. p. 336.



ner advances here an ingenious explanation, by which he makes it evident that we should expect to find, as the result of the respiratory movement, an absence instead of an accumulation of air behind even a moveable obstruction, such as a pellet of mucus.

Thus, each expiration, if capable of slightly displacing the plug, expels a small quantity of the air situated behind the point of obstruction, while the inspiratory movement can only have the effect of restoring the plug to its former position (or, should it be of soft consistence, of even forcing it still further into the tube). A small quantity of air being thus expelled at each movement of expiration, while none is admitted, in consequence of the valve-like action of the plug, it may be easily understood how a repetition of the process will end in complete collapse of all the pulmonary tissue in connexion with the obstructed bronchus.

The entire of Dr. Gairdner's observations on bronchitic collapse, and its connexion with bronchial obstruction, well merit attention; we feel satisfied that in the hasty and superficial examination usually made of the thoracic organs in ordinary *post mortem* sections, this condition is frequently overlooked, or, in its more diffused forms, only too often confounded with other pathological lesions. And yet the interest attaching to this subject does not relate merely to questions of scientific accuracy. We can readily conceive cases in which the decision of important medico-legal questions would rest on the diagnosis of particular lesions found *post mortem*, and the interpretation to be put on them as to their nature and cause. Dr. Gairdner contrasts the appearances presented by pneumonic consolidations and bronchitic collapse. In the more marked examples of either condition there can be but little liability to error, but we apprehend that certain forms of pulmonary congestion, which it is difficult to reduce to any particular type of lesion, are much more capable of being confounded with bronchitic collapse. The first stage (Laennec's) of pneumonic inflammation may also, no doubt, be simulated by certain forms of bronchitic collapse; in all these cases we can recommend, with our author, an appeal to the microscope as the safest guide when taken in connexion with what can be gained from history and general characters. As we have before observed, too much accuracy and attention cannot be bestowed on the diagnosis of these lesions; our decisions may, in certain cases, involve the crimination of parties accused before a court of justice, or, on the other hand, enable us to dispel apparently well-

founded suspicions against the accused; a case which recently came under our own observation very fully illustrates the difficulties and importance of these inquiries.

Of the pulmonary lesions connected with bronchial obstruction, some are permanent and others only temporary. The following propositions exhibit, in the manner of a summary, the results of Dr. Gairdner's experience and observations with regard to the latter:

“Firstly, That pulmonary collapse from bronchitis, when recent and uncomplicated, appears to be susceptible of cure, on removal of the bronchial obstruction. Secondly, That this is usually effected not so much by the agency of respiration, as by the muscular contractions of the obstructed bronchi themselves. Thirdly, That the derangement or paralysis of this de-obstruent function becomes a cause of bronchial accumulation even in the normal state of the mucous membrane, and *a fortiori*, in cases of bronchitis. Fourthly, That the de-obstruent function of the bronchial tubes may be impaired by various causes acting on the pneumogastric nerves, either directly or through the nervous centres; and, fifthly, that it may be stimulated by remedies or other agents acting in a similar manner.”

Though the researches of Reynaud had made the various morbid conditions of the bronchi sufficiently familiar to all interested in thoracic pathology, Dr. Gairdner has unquestionably the merit of establishing, in a clear and unequivocal manner, the precise and direct relation between obliteration of these tubes and the changes in the pulmonary texture just described, and we cannot but feel that in thus giving a defined pathological position to the condition of pulmonary collapse as to its causation and clinical history, he has conferred much benefit on our science. But it is not alone as an independent affection that pulmonary collapse is entitled to our consideration. Though, as we have seen, the recent and uncomplicated forms admit of cure, the lung being restored to its normal conditions, the persistence of this lesion leads, in the opinion of our author, to further and extensive structural changes in the respiratory organs. Under the head of *permanent lesions of the bronchi and air-vesicles depending on bronchitis*, we find a very large share of this memoir devoted to the study of *the relation of bronchitic collapse to pulmonary emphysema*—a relation which, as we shall see, Dr. Gairdner endeavours to establish, not as occasional or accidental, but as invariable and necessary, thereby placing the two lesions in the position of cause and effect.

Passing over the details of forty cases of emphysema, ex-



hibiting in a tabular view the relations of this lesion to other affections of the lungs, we present our readers with Dr. Gairdner's statistical summary:

"The following table exhibits, in one view, the per-centage of most of the lesions referred to above in emphysematous and in mixed cases of disease, the numbers from which it is calculated being derived from the same hospital returns, so as to assimilate the conditions of observation as nearly as possible:

	In Mixed Cases.	In Emphysematous Cases.
Hepaticization, . . . .	9·8 per cent.	10·0 per cent.
Tubercle, . . . .	20·0 „	20·0 „
Condensation (collapse),	11·8 „	67·6 „
Bronchial abscesses, . .	5·5 „	17·5 „
Induration and atrophy,	7·5 „	25·0 „
Concretions, . . . .	4·1 „	20·0 „

"It will be seen that while the first two lesions in the preceding table appear to have no special numerical relation whatever to emphysema, their per-centage being nearly the same in this affection as in the general returns, the remaining four are found to be greatly more frequent in connexion with emphysema than under other circumstances. But this is not all; for as tubercle is almost invariably connected with some form of condensation, and was so connected in many of the cases here referred to, and as all the cases of hepaticization are also to be found under the head of bronchitic condensation, it becomes nearly certain that of the whole forty cases of emphysema not one had any direct connexion with either hepaticization or tubercle as such, but only through the medium of the other lesions mentioned. Tubercle and hepaticization, therefore, are, in all probability, merely the accidents, and not either the cause or effect of emphysema of the lungs."

These results satisfy Dr. Gairdner as to the all but invariable connexion between emphysema and one or other of the four remaining lesions represented in the table, amongst which *collapse* is particularly conspicuous by the high figure which represents its occurrence in existence with emphysema.

Our author next proceeds to the consideration of the mechanism by which emphysema is produced. After glancing again at the opinions of Laennec, he devotes some paragraphs to the inspiration theory, known, no doubt, to many of our readers, and developed in the work of Dr. Williams. Emphysema is, according to this theory, "*a complementary* lesion dependent upon the previous existence of some form of occlusion of the vesicles, and invading the remaining sound portions of the lung." With the general truth of this proposition Dr. Gairdner expresses himself satisfied, but considers "that there is yet

another condition necessary besides mere occlusion of the air-vesicles in a part of the lung, this is, *partially diminished bulk*: in other words, collapse or permanent atrophy of a portion of the lung."

The succeeding pages are occupied with some extremely ingenious arguments advanced by Dr. Gairdner, in support of this proposition, and illustrated by plans and diagrams of the relations of the pulmonic lobules to each other. These arguments are, we admit, put forward with great ability, and we doubt not that the explanations they develop will be found capable of a very general application; but having given the subject a very close investigation, we are not prepared to grant that *diminished bulk* constitutes an indispensable condition to the production of emphysema. The following passage exhibits Dr. Gairdner's main argument :

" Suppose that in the accompanying figure" (a parallelogram divided into three equal spaces) "the three equal partitions represent the *maximum* air space in the normal condition of full inspiration of three lobes or portions of a lung (represented equal for the sake of simplicity); each lobe holds, on full inspiration, twelve cubic inches or other measures of air; and it is adapted normally to hold this quantity without pressure on the capillary circulation, or risk of violence to the texture of the organ. It is at once obvious that no amount of lesion which leaves the upper partition or lobe" (or any of the lobes) "of its normal volume can at all affect the maximum expansion of the other two."

He then proceeds to show how pulmonary collapse fulfils the necessary condition, of not only obliterating a lobule, but also of decreasing its bulk, and thus allowing of the distention of the neighbouring lobule to fill its place, giving rise in part to an emphysematous dilatation of the lobule in the immediate neighbourhood of the collapsed portion of pulmonary tissue. We by no means wish to be understood as doubting the value of this explanation, on the contrary, we think it adequate and satisfactory, but we only object to its exclusive adoption. If we confine our consideration to one particular lobe, lobule, or set of vesicles in connexion with a *single* bronchial tube, the observation of Dr. Gairdner as to the impossibility of mere obliteration of the cavity of one lobule or vesicle not affecting the size of that in its neighbourhood would be perfectly just. But, as we shall endeavour to show, the obliteration of a lobule or vesicle influences not only those fed by its bronchial twig, but also those in its neighbourhood which receive their supply of air from a different tube, or another branch of the same tube, *incon-*



*sequence of the balance in the distribution of air on the vesicular surfaces being disturbed by the occlusion of a vesicle or set of vesicles.*

Thus, let us suppose a bronchial tree to fork, throwing a branch to each of two small lobules; and, for simplicity sake, let us further suppose that each of these lobules contains only two subdivisions or vesicles, the parietes of any two, or of all of them, being in contact. Let one of the bronchial twigs be  $a$ , the other  $b$ , let the vesicles of  $a$  be called  $v$ , and the vesicles of  $b$  be called  $v'$ . Let  $V$  be the volume of air passing through each of the bronchial twigs  $a$  and  $b$ , and  $f$  the inspiratory force of this column of air. Now  $\frac{Vf}{2}$  represents the distending force exercised

on the surface of each of the vesicles under the normal condition, their expansion is, consequently, equable and uniform. Let us suppose, however, that under certain diseased conditions the cavity of one of the vesicles of  $v'$ , in connexion with the bronchial twig  $b$ , becomes filled with any deposit, but undergoes no diminution in volume, we shall now find that the distribution of the inspiratory force on the surface of the remaining vesicles ceases to be equable and uniform. For as  $Vf$  represented the distending force of the column of air in the tube  $b$ , which

becomes  $\frac{Vf}{2}$  for each vesicle of  $v'$ , when one of the latter be-

comes no longer permeable to air, the entire force, or  $Vf$ , is thrown on the surface of the remaining vesicle of  $v'$ ,—now each vesicle of  $v$ , in its immediate neighbourhood, is still acted on only

by half this amount of distending force, or  $\frac{Vf}{2}$ . It is easy to con-

ceive, therefore, that  $v'$  will undergo distention at the expense of  $v$ : in other words, an emphysematous condition of the former is produced. This argument will hold good manifestly as well for lobules as vesicles, and if we suppose a general operation of this force throughout the lung, or any considerable portion of it, we can easily conceive that emphysema may be produced without diminution in bulk of any part of the pulmonary texture. We freely grant, however, that this condition will be much more readily produced when the lobules of any portion of the organ have undergone collapse.

In conclusion, we have only to add, that we can confidently recommend this memoir as well worthy of perusal to all interested in the pathology of these lesions of the respiratory organs, and to the talented author, who has already given such admirable promise, we wish to offer every encouragement to pursue the path of original inquiry he has struck out for himself.

*On the Transmission from Parent to Offspring of some Forms of Disease, and of Morbid Taints and Tendencies.* By JAMES WHITEHEAD, M. D., F. R. C. S., &c. London: Churchill, 1851. 8vo, pp. 351.

THERE are few subjects more interesting or more difficult to explain than the hereditary transmission of disease. Interesting it must be to all, for who can feel sure of not transmitting a heritage of constitutional peculiarities to his children, which may interfere with their comfort or health, and perhaps influence the duration of their life. Add to this that a large portion of our race are further injured, not by the transmission of constitutional weaknesses, but of acquired diseases or the effects of such, and the matter becomes of immense importance. The health, wealth, usefulness, and entire well-being, not of the present generation, but of those succeeding, are involved in the question, and any researches which throw even a little light upon so obscure a subject must be welcomed by the profession. On this ground we were at once disposed to look favourably upon the volume before us, coming as it does from a gentleman whose former publication proved him to be a careful and painstaking observer. Nor has a perusal of the work itself changed our feelings. It is true that the first part, which treats of the doctrine of hereditary transmission, adds but little to our knowledge of its laws, but in the subsequent chapters the author examines pretty fully the question of transmitted syphilis, and to these chapters our attention will be limited.

Passing over the first chapter, therefore, we find that the second consists of a collection of cases which form the groundwork of the subsequent portion of the volume. Whilst admitting the value of this collection, we feel bound to say, that our impression regarding some of the cases has been, that they were somewhat deficient in characteristic marks of syphilis; the author seems to us rather lightly to conclude diseases to be venereal, and, as is common with men who devote themselves to a favourite subject of study, he is inclined to attribute more diseases than we should be prepared to admit to a syphilitic origin. For example, an individual may have a constitutional tendency to tubercular or malignant development, and either may occur in a patient reduced by venereal taint, yet it would not be logical or true to state that syphilis is the cause of tubercle or cancer.

These cases Mr. Whitehead conceives will justify the fol-



lowing conclusions, and, with some reservations, we are inclined to agree with him :

“ 1. That the venereal poison, once introduced into the human body, into the circulation, is liable to remain in the system for an indefinite period, and although there be no outward sign to indicate its presence, that it is nevertheless liable, under favouring circumstances, to re-appear, and develop itself in various forms of secondary phenomena, known as lues venerea.

“ 2. That lues venerea, whether latent or manifest, is capable of being communicated from person to person, and that the poison thus received by one ‘at second hand’ may be thence conveyed to a third, from the third to a fourth, and probably much further.

“ 3. That the mode of contamination is commonly through the medium of the genital organs ; but, as a disease of the blood, it may be conveyed through any other channel by which certain of the secretions, or perhaps the blood of an infected person, are admitted into the circulating current of another : as by the mouth, the nipple, an abraded surface, by vaccination, or through the current of maternal blood destined to nourish the child in the womb.

“ 4. That a woman who has been thus infected, although no visible sign of her actual condition be manifest in the outer surface of the body, yet does she, in perhaps nine cases out of ten, bear specific evidence of its presence in her own person ; and this evidence is to be found precisely in the part where a knowledge of the laws of organic function would lead one to look for it. The establishment of this fact leads inferentially to the suspicion that the genital secretions in man may continue to be charged with poisonous matter for a long time after the disease itself appears to have been cured. The extreme susceptibility to excoriation of the glans and præputium penis which is generally noticed in tainted persons, and which in itself constitutes a suspicious symptom, materially strengthens this supposition.”

These opinions, in some important respects, as the reader will perceive, are in direct opposition to those of John Hunter, and more recently, of Ricord in France, and Mr. Acton and others in England, but are confirmed by the experience of Mr. Hey of Leeds, Mr. Colles of Dublin, Cazenave of Paris, and others.

We shall notice very briefly the arguments and observations adduced by the author in support of these positions.

With regard to the first we quite agree with Mr. Whitehead, that it is very difficult, if not impossible, to decide in what length of time after infection the system can be said to be quite free from venereal taint. That much too limited a period is often fixed is shown by daily experience, but whether we can fairly assume the author’s cases as accurate measures of its du-

ration we are not quite prepared to say. For example, in one case the patient had primary syphilis, and was apparently cured. Fifteen years afterwards, when pregnant by a second husband, who did not appear to have had venereal, secondary symptoms showed themselves in the woman, and her child died with venereal symptoms. In another case the morbid poison was active at the end of six years; in a third, after fourteen years; in a fourth, after nine years, &c. Certainly these examples of prolonged syphilitic influence are supported by the authority of M. Cazenave, one of the first syphilographers of the present day.

With regard to the communicability of secondary syphilis, Mr. Whitehead is opposed to the views of Hunter, which, as our readers have seen in a previous review in our present Number, are so ably supported by Ricord, and adduces additional evidence to that brought forward by Mr. Hey, Dr. Colles, Cazenave, and others, in opposition to his opinions. Thus, in Cases i. ii. and v. of the work before us, the husbands had suffered from primary syphilis, and had been apparently cured some time before marriage, and yet not only their wives were diseased, but the infants also. Case xxi. was one of secondary inoculation, as the wife never experienced primary symptoms. Moreover, the disease stole upon her in the slow, insidious manner which is characteristic of secondary infection. Nevertheless, the disease was of a very destructive character, having eaten away a portion of the nose and the whole of the soft palate, and destroyed all her children.

In another case:

“A young wife, in her twenty-fifth year, having been married upwards of four years, came under my notice in September, 1850, complaining of decayed general health. She had had five pregnancies, of which the first ended at seven and a half months; the second, at three months; the third, at seven and a half; the fourth, at eight and a half; and the fifth at eight and a quarter, all still-born, and in a state of decay.”

An examination of the uterus revealed a condition which Mr. Whitehead considers characteristic, and to which we shall refer by and by. This led to inquiry of the husband, who, it appeared,—

“Had never suffered from either venereal disease or gonorrhœa in the primary form. He frankly confessed, however, that he had incurred the risk of infection some months before marriage. A few weeks after the occurrence alluded to by him, he had an ulcer on the lower lip, near the right angle of the mouth; it was broad and



deep, and the surrounding parts were extensively inflamed, hard, and painful. The sore proved refractory, and, on being shown to a late eminent surgeon, it was pronounced venereal, and prescribed for accordingly."

Other cases are given by Mr. Whitehead, but it is sufficient to quote these as illustrative of the kind of evidence which he adduces, and to which, indeed, most British surgeons of the present day could add from their own observations; yet how difficult it is to come to a decided conclusion on the matter is evident from the observations of Ricord, to which we have already alluded.

Let us now pass on to consider the various modes of infection. The author first adduces a number of cases in which little or no disease could be discovered in husbands, and who nevertheless infected their wives; and he observes that—

"Cases of the above description, of which a considerable number have fallen under my own notice, supported as they are by a mass of evidence instituted by men of unquestionable integrity and great experience, if not sufficient to warrant the conclusion, afford at least strong grounds for suspecting, that the syphilitic poison may continue to exist, as a blood disease, for an indefinite period after all actual traces of its presence have disappeared from the system, and that the taint is frequently conveyed under such circumstances through the medium of the *sexual* organs."

Abundant cases from high authorities, in addition to his own, are quoted, to show that a child may give the disease to its wet nurse, or receive it from her. We should have thought this evidence unnecessary, were it not for the writings of Ricord and Acton, for surely every practitioner must have met with such. Mr. Whitehead gives six cases, of which "five were from the mother to the infant, in some of whom was the nipple excoriated, and one from the infant to the mother."

"In Case XII. the mother contracted primary syphilis from her husband, six weeks after delivery. All her previous children were healthy. The infant, also in health up to the date of its mother's accident, was covered with secondary syphilitic eruptions and other symptoms, at three months old, several weeks before any secondary indications manifested themselves in the mother."

The infant that communicated the disease to its mother acquired it, in Mr. Whitehead's opinion, by vaccination:—

"The infant, full-grown and healthy at birth, continued in a thriving and vigorous condition until vaccination was performed, at about the age of three months. The symptoms which followed

were undoubtedly syphilitic, both in the infant and its mother, to whom the disease was directly continued through the medium of the breast; and it was satisfactorily ascertained that the child from whom the vaccine lymph was derived, as well as its mother, had previously laboured under lues venerea."

So far as one case goes, this is of great value, but we need hardly say that many more would be required to establish the point. It would be very desirable that some method of testing the question to an ample extent should be adopted, with sufficient precautions against error.

Again, the disease may be communicated by contact with an abraded surface, as has repeatedly occurred to accoucheurs and midwives, and of which Mr. Whitehead gives two cases. M. Cazenave mentions one case, and Mr. Whitehead another, in which the virus produced its characteristic effects on being brought into contact with an unbroken cutaneous surface. We ourselves knew a case in which a medical man acquired the disease by examination of syphilitic patients, and who communicated it to persons whom he attended during labour.

Cases are on record by Cullerier, Biett, and Cazenave, to which Mr. Whitehead has added some, which prove beyond all reasonable doubt that the disease may be communicated by contact of the lips with those of an infected person.

After examining these points, Mr. Whitehead proceeds to refute M. Ricord's doctrine of the non-communicability of secondary and tertiary symptoms to the infant, and of the infant *in utero* not being affected by disease acquired by the father after its conception. He remarks:

"My experience leads me to believe that syphilis in the secondary, as well as in the tertiary form, can be conveyed from father to mother, and from the latter to the offspring, without any necessary outward manifestation whatever of its presence in either one or the other. That the non-existence of the disease in the mother has generally been believed in cases where it has appeared in the offspring, is owing, in my opinion, to an oversight committed in neglecting to examine the uterus in such cases; for in almost every instance examined by me, characteristic disease of this organ was evident whenever there was reason to suspect it in the offspring, although no evidence whatever of its presence existed outwardly in the parent."

Before, however, proceeding to the consideration of this important point, we must first notice that Mr. Whitehead rightly maintains, contrary to the opinion of Trousseau and Lassaigne, that the infant may exhibit syphilitic eruptions on the skin at birth, though they more commonly make their appearance a week or two afterwards. We cannot deny that the desquama-



tion and discoloration of the skin in many syphilitic still-born children may be owing to cutaneous syphilitic eruptions, as we occasionally find an analogous condition in those still-born children who die shortly before delivery, without time for putrefactive action, as Mr. Whitehead observes; but we are bound to state, that the distinction between the syphilitic infant and the putrid one, non-syphilitic, is extremely difficult to be made, and in many cases impossible, from appearance alone. Practically, none should pronounce upon the presence of a venereal taint from the aspect of the fœtus alone.

The most common symptom in women suffering under the disease is leucorrhœa.

“But the stain (on the linen) in venereal affections is different from that communicated by the product of simple or inflammatory action, though in what the difference consists, chemically considered, we do not exactly know. In venereal affections the colour alluded to has a greenish tint, and is often very difficult to remove from the linen by washing.”

But it is upon the condition of the uterus that Mr. Whitehead lays most stress, and of which he claims to be the original observer. He speaks of these symptoms also as “constant and altogether peculiar.”

“They may be reduced,” he says, “to the following forms:— 1st. Hypertrophy, affecting the lower section merely, or extending upward to the body, or even involving the whole organ. 2nd. Induration, existing circularly or partially, or extending in some directions as far as the touch can ascertain the condition. 3rd. Erythema, presenting an even surface of a dark red, glistening aspect, or being interspersed with a number of white elevations, usually denominated follicular enlargements. 4th. Excoriation; the cuticle, when the parts happen to be viewed at an early period, being broken in such a manner as to present an appearance as though the subjacent structure had increased to a dimension beyond the capacity of its cuticular envelope, which seems as if it had burst from over-distention. 5th. Aphthous ulceration. 6th. Endo-metritis, inflammation and ulceration of the inner surface of the uterus, terminating externally, when it is sometimes seen to surround the orifice, at other times implicating but one labium, and limited outwardly by a defined margin. 7th. Warty excrescences.”

Now we do not for a moment deny that any or all of these changes may accompany venereal disease; but the real question is, whether these changes are characteristic of syphilis, and are not observed when the patient is free from the taint. If the answer be affirmative, then we have acquired a most valuable sign of the disease even in cases where there are no

external symptoms. Our own opinion, however, is that these appearances are not peculiar to a syphilitic patient, but that they occur under circumstances to which no suspicion attaches.

The first and second changes Mr. Whitehead admits to be "by no means peculiar to syphilitic affections," we therefore may dismiss them. The erythematous redness, however, he thinks pretty certainly indicative of the syphilitic taint, but we can assure him that we have repeatedly seen cases answering to his description to which no suspicion could attach, and in which no consequences to the offspring followed. After all the discussions lately about excoriation, we think we need hardly deny that they are pathognomonic. You may have syphilitic excoriations, but who will undertake to distinguish them by appearance alone from those non-syphilitic? You may have true chancre upon the cervix uteri, though it is very rare, and about that there can be no doubt.

Aphthous ulceration may perhaps be more common in syphilitic patients, but it is impossible to deny that it may occur without venereal taint. Mr. Whitehead thus describes it:—

"The aphthæ, as seen on the labia uteri, are surrounded by, or rather situated upon, a dark-red, inflamed surface. They are slightly raised, in shape irregularly circular, and appear at first view as grey, isolated incrustations. If a piece of dry lint be brushed over them the crust is detached, leaving a red surface of corresponding dimensions, which is minutely granular and bounded by a well-defined, slightly elevated margin. They are about a quarter of an inch in diameter, larger or smaller."

Decidedly the most characteristic of all these morbid changes, and the only one upon which we should place much reliance, is the presence of warts.

"Warts," says Mr. Whitehead, "are not uncommonly seen growing upon parts about the orifice and cervix of the uterus. So far as I know, excrescences of this kind, so situated, are not traceable to any other than a specific origin, and, I believe, there is no phenomenon more certainly indicative of the syphilitic diathesis than this. Sometimes they are seen springing from the surface of the vaginal membrane in different portions of its extent; sometimes from the vulva, around the anus; between the nates and adjacent situations; they all alike indicate the presence of the venereal taint, which is liable to be transmitted to the offspring."

We regret being conscientiously obliged to differ from so diligent and intelligent an observer as Mr. Whitehead; we do so respectfully, and with a full consciousness of the obscurity



of the subject and the difficulty of arriving at a full and accurate knowledge of the matter.

There is one point upon which the author has laid great stress, and which we think deserving of more attention than has been given to it by other writers,—we allude to the condition of the blood in syphilis, its diseased state, and its capability of giving origin to other developments of the disease. Thus, he observes that,

“ There are sufficient reasons for believing that the blood of persons labouring under diseases of this class is in a depraved state from the outset of the attack to its termination; and it is probable that this abnormal condition is due to the addition of some noxious agent, the precise nature of which microscopical and chemical processes have so far failed to determine. The potency of this morbid principle is sufficiently evident in the effects which it produces; the perversion, for instance, of the processes of nutrition, the impairment of organic functions, disturbance of the fundamental arrangement of solid tissues, derangement of the health generally, and the consequent abridgment, in many instances, of the natural term of life.”

Let us add, that depravation of the blood appears a far more philosophical as well as more intelligible explanation of many of the cases of transmitted syphilis than the mechanical theories of many modern writers.

Mr. Whitehead has given us some interesting data of the effects of syphilis upon the *fœtus in utero* and after birth :

“ Out of 256 deliveries of syphilitic women in my own practice, 110 terminated prematurely at different periods of the process. In five cases this event happened at two months; in thirty at three months; in thirteen at four months; in four at five months; in ten at six months; in thirty-nine at seven months; in sixteen at eight months. Only two of these were born alive; they were seven months children. One of them died on the second day, the other a few days later.

“ Of the remaining cases, amounting to 146, said to have been at the full time when delivery took place, sixty-three died at the following ages: twelve during the first week; two in the second week; one in the third week; five in the fourth week; eight during the second month; six during the third month; seventeen during the second quarter of a year; three in the third quarter; one in the fourth quarter; seven during the second year; and one in the third year of life. A few were still-born, and a considerable number of those who survive are still infants, a large proportion of whom may probably not live beyond the period of early childhood.”

Our notice, too brief and unsatisfactory for our wish, has, however, occupied so much space that we can only refer our

readers to the work itself for the description of the cutaneous eruptions in children and their treatment. A perusal cannot fail to bring its own reward, in the addition of a very valuable collection of cases to those already on record, and some very sound and judicious observations by the author.

We can, therefore, and do most warmly, recommend the work to the profession as the result of great experience carefully recorded. It is evidently the production of a veteran in the profession, as regards minute and trustworthy observation, and of one who is independent of, yet just to, the labours of others.

*A Practical Treatise on the Management of Diseases of the Heart, and of Aortic Aneurism, with especial reference to the Treatment of those Diseases in India.* By NORMAN CHEVERS, M.D., Civil Assistant Surgeon, Chitagong, Bengal. Calcutta: Lepage and Co. 1851. 8vo. pp. 150.

*Collection of Facts illustrative of the Morbid Conditions of the Pulmonary Artery.* By NORMAN CHEVERS, M.D., &c., Bengal. (Published in the London Medical Gazette between July, 1846, and September, 1851.) London: 1851. 8vo, pp. 137.

IN relation to diseases of the heart two erroneous impressions influence the public mind in the present day: first, that they are now more prevalent than formerly; and, secondly, that medical treatment has little power in controlling the fatal progress of this class of affections. When we reflect on the causes which are regarded as productive of diseases of this organ, we cannot subscribe to the opinion, that their frequency is greater now than it ever was; and we believe that this idea arises from the fact that, the skill of the physician in diagnosis being more perfect, the true existence of disease is established where in similar cases it would formerly have been overlooked, or would have received its appellation from some of those consequences which necessarily follow structural changes of this important organ.

The first work, the title of which we have given above, disproves well the second false notion referred to. Dr. Chevers truly observes:

“When we find that life may be continued for many years where the heart is crippled by such defects as closure of the ostium of the pulmonary artery, or obliteration of the thoracic aorta, a hope of obtaining the aid of nature’s adaptive recourses in our plans of



treating much less formidable impediments of the organ, becomes our leading encouragement. We then learn to perceive the necessity of not trusting merely to the treatment of symptoms in heart disease; but having diagnosticated the particular lesion which exists, our object is, to be enabled to judge, almost with mathematical precision, what consequent morbid changes are likely to occur; and to perceive, with the utmost clearness, those saving adaptations of parts and compensatory alterations of function, which also have a tendency to become established. This done, our main efforts will be directed to averting the former, and to promoting the latter."

In support of the opinion that, under proper management, disease of the heart may be stayed in its progress for a prolonged period, we may mention the following case. A gentleman advanced in life became very much broken in health; he was under the care of a physician who pronounced him as labouring under climacteric disease. The patient, having ascertained from another medical practitioner the nature of this affection, was thrown into the greatest despondency: under these circumstances we first saw him. We found him labouring under disease of the mitral valves, accompanied by aggravated dyspepsia. A course of purgation relieved the dyspepsia, and the patient considered himself as perfectly cured. His family were made aware of the character of his disease, and, with proper management, he for ten years subsequently enjoyed long intervals of good health, when, contrary to the advice of his friends, he took a long journey in an open vehicle. Endocarditis was the result, pulmonary engorgement with dropsical symptoms followed, yet he survived for two years. A *post mortem* examination revealed the disease of the heart, the diagnosis of which had been made twelve years previously.

Dr. Chevers, with excellent judgment, enumerates the following indications of treatment in organic heart disease.

"1st. To diminish, if possible, the valvular or other immediate causes of obstruction.

"2nd. To endeavour to remove all causes of impediment to the circulation existing in the lungs, abdominal organs, and capillary system generally.

"3rd. To lessen vascular distention by reducing the bulk of the circulating fluid, without impoverishing the system.

"4th. To sustain or restore the power of the heart, and to reduce the capacity of its dilated cavities.

"5th. To equalize the circulation, and to maintain free vascular action on the surface, by regulating the temperature, clothing, &c., and to provide due access of pure and well-oxygenized air.

"6th. To remove and avert irritation and excitement of the nervous system, and to procure, as far as possible, rest and tranquillity of body and mind."

In the consideration of the first indication the author alludes to the danger of rash attempts to remove old endocardial disease, particularly by mercury, in the vain hope of causing absorption of the deposit; he, however, attempts, probably with too much refinement, to form, from physical signs, a diagnosis between a clear fibrinous deposit in the sub-endocardial fibrous tissue, and the deposition of lymph or fibrinous coagula upon the free endocardial surfaces of the obstructed orifice. We believe that in determining on the probability of the absorption of endocardial deposits, the practitioner should be intimately acquainted with the history and progress of the case. In rheumatism, when the heart becomes affected while the patient is under the care of the physician, the character of the physical signs may be of some value in determining the seat of obstruction, but in those cases where the previous state of the heart is unknown they must be inefficient guides, and yet a knowledge of the situation of the deposit is of much importance as regards treatment, for, as our author observes, "deposits on the free endocardial surface can scarcely be removed while those that are recent and interstitial are, in a great degree, subject to absorbent action."

An interesting question arises, whether the method of treating rheumatism has any influence in the prevention of heart affections occurring in its progress? What may be termed the revival of the humoral pathology has, in a great measure, modified the treatment of acute rheumatism, so called. Specifics are now desired, and depleting remedies are, by most practitioners, nearly exploded. We are not disposed to attach much value to the change. Admitting the specific character of rheumatic inflammation, and that it cannot be cured merely by bleeding, we yet affirm, that in no disease, particularly in its early stage, and in young and sthenic individuals, is a judicious detraction of blood of more value in lessening fever and assisting the action of remedies, and in such cases we believe that it acts as a preventive to the supervention of heart affections. A singular fact is mentioned by our author, and is supported by the observation of others, that although acute articular rheumatism is very prevalent in India, the association of pericarditis and endocarditis with this affection is remarkably rare.

The author's observations on the treatment of rheumatism are not, in our opinion, characterized by the sound judgment displayed in other parts of the work. As an example we quote the following passage:

"The most successful remedies for rheumatism are all evacuates; and nearly every new specific is of this class. The disease ap-



pears to depend upon the presence of some poison; it may be lactic acid, or some other (acid?) material in the blood; and, as we have not succeeded in discovering the means of neutralizing this, our main object is to expel it. Hence we have colchicum, and more gentle means of continued purgation, to remove it by the bowels; calomel to act on the liver; the salt of potash; lime-juice, *et id genus omne*, to expel it by the kidneys; antimony, ipecacuan, and all other diaphoretic agents to eliminate it by the skin. Lastly, there is general blood-letting, but this is the least appropriate measure of all. Bleeding upon this indication is as useless as it would be if employed to cut short the active operation of arsenic or of tartar emetic."

If rheumatism depends on a materies morbi, which must be eliminated from the system before relief be obtained, we ask, how can the success of the treatment by opium and aconite be accounted for? This plan has received the sanction of high authorities in whose hands it has been remarkably efficacious. We are of opinion that the best mode of treating rheumatism is still an undecided question, but we are slow in believing that animal chemistry can give the all-important assistance some expect therefrom in its solution. In expressing this opinion we feel that we are in some degree *pronouncing* against the present fashionable mode of investigation; we do not deny its utility, but we protest against its being ridden as a hobby, particularly over the field of practical medicine.

The author's remarks on the second indication are valuable and worthy of attentive perusal. We shall only allude to one point which is of much interest, namely, the distinction which ought to be drawn between impediments to the circulations and lesions of the heart caused by originally defective thoracic development, and those imperfections of the lungs induced by congenital disease of the heart. The necessity of this distinction in practice is evident; in the one case, while the development of the chest in youth is in progress, our efforts should be to bring the lungs fully into play by gymnastic exercises and similar means; in the other, such a course of proceeding must be injurious as tending to aggravate an organic condition, which is irreparable.

Elucidation and improvement of the general treatment of diseases of the heart are presented in the work before us. Dr. Chevers justly disapproves of Valsalva's plan, and of violent purgation, yet he exhibits the value of regulated restriction in the quantity of ingesta and of purgatives, and diuretics given with proper precautions. In relation to the use of the latter class of remedies the following sound and practical remarks are offered:

“ Unfortunately, we are usually called upon to require the aid of the kidneys at a stage of heart disease and dropsy, where the efficient action of these and other excretory organs can least be demanded. There are few more difficult cases than that of a person who is the subject of advanced cardiac obstruction attended with bronchitis and serous effusions. Here it will generally be found that the urine is high-coloured and scanty, the bowels torpid, the skin dry, the secretion of bile defective, and transpiration from the pulmonary exhalents impaired by the diseased state of the bronchial mucous membrane; in fact, that every natural outlet for the pent-up fluids is obstinately closed. This is a crisis at which a full bleeding from the arm, a brief course of digitalis, or of squill and juniper, or a dose or two of elaterium, would prove a direct and almost infallible means of despatching the patient to his grave, *secundum artem antiquorum*. Providing anything can be done here,—and it happens fortunately that, in many instances, our means of aid are not wholly exhausted, even at this unhappy conjuncture,—the disentanglement of the morbid complications becomes a somewhat knotty task, and no ordinary caution is required in deciding which organ should be first selected with a view to attempting the restoration of its functions. A fatal error will be committed, if we at once endeavour to act upon the kidneys: their state of congestion cannot be relieved so long as the liver and the heart are gorged with blood, and the skin remains inactive, or while the organs themselves actually suffer from the pressure of large ascitic effusion; under these circumstances all diuretics become local poisons. The organs are, for the present, physically incapable of being excited to healthy action, but their susceptibility to irritation and inflammation is increased tenfold. The safest and most physiological course, I believe, is, first, to endeavour to restore and to excite the action of the skin. A well-managed plan of active diaphoretic treatment can now scarcely be attended with danger. At the same time, mild expectorants and aperients may be employed, but with a less sanguine hope of present success. A strict limitation of ingesta will tend to relieve the heart, and to reduce the hepatic congestion; and then, as the skin begins to act freely, and dyspnœa and palpitation become somewhat abated, a certain amount of relief to the kidneys may be anticipated, provided the congestion of these organs is not associated with advanced structural disease. This tendency to restoration of function may be aided by local abstraction of blood, the application of heat, counter-irritation, dry cupping, &c. In certain instances, every means of treatment will fail to procure the complete disembarrassment of these organs. In cases where the urine has become albuminous (*still retaining in great measure its due specific gravity*) in consequence of mere congestion, they may generally be relieved, provided the delay to their circulation has not been of extremely long standing; but where, as is too often the case in heart disease, the kidneys have long been organically in fault, secreting urine of low specific gravity, either with or without albumen, or where bloody urine of any tinge has latterly been passed, the prospect of amendment is not



to be encouraged so sanguinely as to lead to the trial of remedies which might otherwise prove too expensive for the system. When, after the removal of mere congestion, the natural condition of the organs has been for some time restored, the cautious use of diuretics for short periods may be attended with benefit; but, in any case where the urine has previously contained albumen, these medicines should be employed only upon urgent necessity, with the utmost caution, and in their mildest forms, and with the precaution of daily testing the urine by heat and nitric acid."

Dr. Chevers regards true hypertrophy of the ventricles as alone caused by impediments to the circulation, or from habitual plethora creating this state by the increased difficulty to the heart propelling its contents. He denies the existence of "concentric hypertrophy," and believes that the heart cannot become too muscular and too powerful from mere hypernutrition. In fact, our author regards hypertrophy as a reparative process in obstructed circulation, and dilatation as the result of persistence or aggravation of such obstruction, the heart being weakened in its attempts to carry on the circulation. Entertaining these views, he asks, is it rational to believe that hypertrophy can ever become excessive?

The inference drawn from these doctrines is, that hypertrophy has little influence in the production of arterial cerebral apoplexy. The author regards the latter as in association with hypertrophy rather than as the effect of this condition of the heart. We do not fully agree with Dr. Chevers in this opinion. In some instances we have evidence of the increase of the *vis a tergo* of the circulating fluid in hypertrophy of the heart, certainly producing injurious effects on the blood-vessels of the brain. It is on their power of resisting the increased congestion that the result must depend in relation to the production of apoplexy, and the important practical point in the consideration of this subject is, that we must not be deterred from taking energetic measures to relieve the disturbed circulation of the brain through fear of weakening the heart; we must combat the greater evil at the expense of producing the lesser, which, as a matter of course, would be consequential on the progress of the disease.

There is only one point more of a practical nature to which we shall advert, namely, the use of sedatives in heart disease. Dr. Chevers is opposed, *upon principle*, to their adoption altogether. As a general rule, we agree with him in a prejudice against their administration; but there are exceptions to the rule. In those cases where there is great disturbance of the nervous system, with loss of sleep, a sedative combined with a

stimulant will often afford great relief. Paradoxical as it may appear, we have used, under such circumstances, the combination of digitalis and carbonate of ammonia; and in a case brought under the notice of the Pathological Society of Dublin some years since by Dr. Fleming, this mode of treatment had been remarkably successful in alleviating the sufferings of a patient whose condition precluded the use of a direct sedative.

Dr. Chevers' second work is an interesting history of congenital irregularities and pathological conditions of the pulmonary artery. We must refer our readers to the book itself, which contains much novel and interesting information, and we shall merely notice a few points in elucidation of the author's views.

In treating of the subject of cyanosis, the author combats the long-received opinion that the disease depends on the admixture of venous and arterial blood through the abnormal cardiac apertures usually discovered in such cases. He supports the doctrine of Stillé, that cyanosis depends on general congestion of the venous system from obstruction in the right side of the heart, or in the pulmonary artery impeding the return of its blood to the lungs. It is, however, remarkable, that this disease is not induced in adult life even by extreme narrowing of the pulmonary orifice, thus exhibiting the adaptation of the system at this period of life to morbid changes in the circulation.

The causes of the immunity from disease of the right side of the heart, as compared with the left, are explained as follows:—

“ I am disposed to attribute the greater immunity from mechanical injury and disease of the right heart and pulmonary artery, in some measure, to the comparatively yielding nature of their structures, the free reflux of which the tricuspid valve admits, whenever the ventricle is over-distended; and the great pliability and extensibility of the muscular, valvular, and arterial tissues—circumstances which must all have an influence in rendering the parts less liable to mechanical injury upon occasions of obstruction and over-excitement. In a very large proportion of the cases of spontaneous mechanical lesion of the heart, the mischief is found to have occurred on the left side. The right cavities being more accustomed to obstructions, and being naturally more yielding, do not so readily suffer from undue distention. It is also highly probable, that the cavities on this side of the heart are naturally more adapted to the reception of irritating fluids, than are those on the left: as, in health, the former receive the highly carbonized blood from the veins, which the latter are accustomed to transmit only in a perfectly depurated stream; so, in disease, a strongly azotised, or



otherwise morbid fluid may be conveyed with impunity by the right cavities, while it produces the most irritating effects upon the left. All are aware, that pungent substances, which may be borne without injury on the mucous membrane of the interior of the lip, produce the most violent inflammation if applied to the conjunctiva of the eye; and yet it would be difficult to assign to this any other reason than that of necessity."

The author devotes a considerable portion of his work to the description of various diseased states of the pulmonary artery, but our space forbids an analysis of the details, which are well worthy of the attention of the pathologist. These two works of Dr. Chevers are evidently the productions of a zealous and talented observer. We hope yet to see them in a more connected form, and free from those typographical errors for which he offers an apology. A concise description of the physiology and pathology of the heart, as received by the best authorities in the present day, divested of all the erroneous theories and contradictory opinions which have hitherto enveloped this subject, would form an admirable addition to his labours. We consider him well qualified for the task, and we are of opinion that a book of this description is a *desideratum* in medical literature.

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*The Medical Aspects of Death, and the Medical Aspects of the Human Mind.* By JAMES BOWER HARRISON, M.R.C.S.E., &c. London: Longmans. 1852. Foolscep, 8vo, pp. 165.

IN the elegant little volume now before us, bearing the above title, Mr. Harrison, of Manchester, already very favourably known as a medical writer, presents an interesting view of two important aspects of mortality. The latter, on the Medical Aspects of the Mind of Man, a most able essay, has already appeared in the pages of our excellent contemporary, the Psychological Journal, and we doubt not has there fallen under the observation of the majority of our readers. The former contains, first, an excellent *resumé* of the signs of death, a subject which has lately been very fully investigated, chiefly by the French physiologists, and the important results arrived at by whom we have recently noticed at length<sup>a</sup>; second, a review of the causes of death, or the mode in which life terminates; and third, a notice of the antecedent symptoms of death, or the *bodily changes* which immediately precede it. The entire is

<sup>a</sup> New Series, vol. xii. p. 107.

written in a highly philosophic spirit, containing throughout not alone judicious observations on the intimate link between life and death, which do honour to the author, but valuable medical hints. We cordially commend the tone and character of these essays, and we earnestly press their perusal on the profession. Indeed they may be read, too, with advantage by the non-professional public.

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*The Nature and Treatment of Softening of the Brain.* By RICHARD ROWLAND, M. D., Assistant Physician and Lecturer on the Principles and Practice of Medicine at the Charing Cross Hospital, &c. &c. London: Highley and Son. 1851. 8vo, pp. 137.

THOUGH much has been written since Rostan's memorable work, "*Recherches sur une Maladie encore peu connue, qui a reçu le nom Ramollissement du Cerveau*," published in 1820, no work specially devoted to this interesting lesion has issued from the English press in that interval. Its bibliography chiefly includes notices and articles thereon which appeared in the various medical journals, or which have been incorporated in volumes upon the practice of medicine, or the pathology of diseases of the nervous system. Dr. Rowland has, therefore, sufficient excuse in submitting his work to the notice of the profession; nay, more, he has done good service in the cause of cerebral pathology, even were the work before us to be viewed merely as a compilation. Such a *resumé* becomes accessible to all, and that knowledge, hitherto scattered over the vast field of medical literature, which few have the means or time to traverse, becomes widely disseminated. This laudable aim seems to have been the object of our author, as may be gleaned from his introductory observations:—"I propose in the following pages to make a careful analysis of the facts bearing upon this important disease; and, if possible, to arrive at its separate and individual history."

Such is the scope which our author laid out for himself. Of the manner in which he has executed his task, and as to the degree of originality which the facts, or their management exhibit, our readers may judge in the course of this review.

The most important information at which we can arrive, touching any disease, is its nature or pathology. The diagnosis and the treatment are, in a great measure, dependent thereon. Now, the nature of a disease can be examined in an ordinary way by a careful inquiry into the causes, symptoms,



and morbid anatomy, as ascertained from actual cases, or from the recorded opinions of accurate observers. This method, when subjected to the influence of sound reflection, has sufficed, in the majority of cases, to establish a basis for a true pathology; and, with the aid of clinical observation, for correct diagnosis and treatment. But there are diseases, not a few, which fail to be thus elucidated, requiring, in addition, powers of observation which have been brought into use but very recently in the province of practical pathology. We allude to means which exhibit the intimate and elementary structure and progress of morbid changes, as distinguished from that coarser anatomy which suffices to explain mechanical signs. In reference to the disease before us, until the year 1840, the former method had been pursued by pathologists, but unsuccessfully; for scarcely two coincided in their views as to its exact nature. It was reserved for Gluge in 1840, Bennett in 1842, and subsequent observers, to throw the light of truth upon this hitherto obscure lesion, and present a decided description of the disease, based upon the surest data which the present advanced state of professional knowledge could afford.

The author has divided his subject into several sections, which occupy 121 pages, with a sketch of the nature and pathology of the disease; six pages with the diagnosis and prognosis; and the remaining ten with the treatment. His discussion of the *nature* of the disease is commenced with a general sketch of the ordinary varieties, as referred to by authors and practitioners. These include the primary or idiopathic softening (a rare case), sympathetic or secondary softening, acute softening (not necessarily inflammatory), inflammatory softening, apoplectic, ataxic, chronic, and latent. These names, based upon some theory of the origin, the symptoms, or the duration of the disease, have sprung up among practical writers, and indicate rather special series of symptoms, than any attempt at a true pathology. Indeed, although the terms may be the result of practical experience, yet, were we to be guided in managing a case by a reliance upon them alone, we should most egregiously err. They have their use, however, inasmuch as they are the exponents of the *coarser* observations in practice, and, as such, true to a certain extent. They are, moreover, familiar, and serve to give an idea of the prevailing forms to the inexperienced practitioner.

Dr. Rowland next passes in review the principal *symptoms* observable in the disease, as an aid to a clearer apprehension of its nature and characters. This section, which extends over thirty pages, is well drawn up; and, as a whole,

characterizes the disease unmistakeably. We are induced to give a few extracts from this portion of the work. Speaking of the *aberration of the intellect*, he says (page 15):

“It often happens that the first circumstance that calls attention to the patient’s state, and awakens the apprehension of his friends, is some symptom of this kind:—there is unwonted slowness of comprehension, failure of memory in regard to familiar names and circumstances, and incapacity for the common routine duties of life. The progress of the disorder is frequently marked by the gradual deepening of the mental torpor, until perfect imbecility be established. But the destruction of the intellect does not in general advance in this uniform manner; the tenor of the course is interrupted by accession of more determined oppression, in which the higher cerebral functions are sometimes completely suspended. These attacks, whether of lethargy, somnolency, or coma, form so important and characteristic a feature of cerebral softening, that it may be proper to glance at the various modes of their occurrence. In acute cases a seizure of this kind may come on very early in the disease, and terminate fatally.” (Here an instance is given.) “But the general character of these invasions is, that they are transient and frequently repeated. In chronic softening, the case may go on in this manner for months or years, paroxysms of insensibility or coma returning at intervals during the whole period.”

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“Another circumstance observed in these seizures, and highly indicative of cerebral softening, is the rapid, almost the abrupt manner in which consciousness is restored. At one hour the patient is labouring under symptoms of deep apoplexy, and at the next he is found with his memory and judgment in a great measure regained, and even sitting up and conversing cheerfully.”

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“There is a species of mental imbecility sometimes accompanying cerebral softening, which is manifested chiefly in the manner and actions, and on that account is called by the French physicians *deliré d’action*. These patients are generally aged persons; they are occupied continually with some employment without motive, almost without consciousness, and are in general very restless and irritable. They dress and undress frequently in the day; busy themselves in unmeaning preparations, and continually repeat the same act, forgetting its previous performance. From this state they generally pass to more determined dementia, in which the mind is hopelessly clouded, the expression vacant and idiotic, while at the same time the extremities are paralytic.”

The next class of symptoms which our author discusses are those connected with *speech and articulation*. They are highly interesting, and are graphically described. The speech may be affected in various ways. The patient may be unable to ar-



ticulate, or even to produce a sound; which arises, not from any defect in the organs employed in the mechanism of speech, but in that part of "the process by which the mandates of the will are conveyed to the organs of articulation." Again, the speech may become hesitating and drawling in utterance, occasioned rather by a tardiness in the process of thinking than by deficient memory. In another case it may arise from positive want of recollection, sometimes so sudden as to stop the patient while in the act of expressing an idea. A fourth form is observed in the misapplication of words and sentences. Several curious instances are here stated in illustration.

The third class of symptoms refer to *voluntary motion*, and are divided into paralysis of one or more limbs, tonic contraction of the flexors, and convulsions. The palsy is as often sudden as gradual, rarely limited to a limb, eventually hemiplegic. The spastic rigidity is fully noticed by our author, and though relied on by Rostan and Andral as almost pathognomic of softening, the experience of other pathologists leads to the belief that, like the other symptoms, taken singly, it is not peculiar. Besides convulsions, our author notices "another very curious symptom, that seems to occupy a middle station between convulsion and contraction, which consists of a series of automatic movements, frequently repeated and entirely under the control of the will. Rostan observed in one of his patients, that the hand was opened and closed alternately. Lallemant had a patient whose left arm and hand were continually agitated with movements of flexion and extension, until the limb became palsied." In another case, "the right arm was raised every two or three minutes, and the hand carried by a loose, disjointed kind of motion to the head; then, the muscles suddenly relaxing, the arm fell to the side. These movements came on in paroxysms, which lasted one or two hours."

The symptoms connected with *altered sensation* are next noticed. These are generally early observed, and "when they take the hemiplegic form, and persist in the same limb, the case should be thoroughly sifted, for they are expressive of danger." Absence of sensation is generally subsequent to paralysis, and in many cases wanting. As we observed very opposite conditions in the voluntary movements, so it is in sensation; it may be absent, or blunted, or acutely neuralgic.

The next symptom is *headach*, which is amongst the earliest and most generally present; and as it is frequently intermitting or varying in its character, may be readily passed over as of minor importance. It is a symptom which requires the

corroboration of others, particularly those already referred to, before we can give it its true value.

Save in the latter stages, the organs of *special sense* are seldom prominently affected. Durand-Fardel has distinctly proved by numerical references, that the state of the pupil gives no certain aid in the diagnosis between softening and apoplexy; other organs are still less affected.

It is only in the acute cases that the stomach and chylipoietic viscera present evidence of the cerebral lesion; the urine is not indicative. In the chronic state, it will, of course, present the alkaline phosphatic condition common in cerebral disease. The respiration presents no subject for remark. Our author notices, in connexion with this, however, a peculiarity in the respiratory movements, pointed out by Serres as indicative of cerebral disease. It is an inequality in the expansion of the lungs, and is, most probably, correctly ascribed to the existence of latent pneumonia or other pulmonary disease supervening in the course of the disease. The circulation seems little affected except in the apoplectic and ataxic varieties.

“The expression of the countenance is very peculiar in confirmed softening; and in old chronic cases that mixture of imbecility and astonishment which is so justly held to portray the disease is strongly impressed on the features, suggesting at once the existence of the lesion.”

Incorporated with the symptomatology, our author takes the opportunity of noticing the views of pathologists as to the causes of the different classes of symptoms, more especially in regard to the aberration of intellect, the inarticulation, and the perversion of sensation. We think that such observations should be preferably included in the section referring to the nature and pathology of the disease, as this would prevent needless repetition. We shall, therefore, defer the remarks we intend to make thereon until we arrive at that section.

A description of the *causes*, both predisposing and exciting, occupies about twenty-eight pages. In attempting to trace these, he mainly trusts to an examination of cases verified by dissection, “without, however, overlooking other means which, although less worthy of reliance, might assist in confirming the results obtained from more authentic sources.”

*Hereditary predisposition*, generally deemed influential, according to the author's experience, is very limited in predisposing power. As to previous constitutional states, he is inclined to believe that a considerable portion of those attacked “have



either undergone some debilitating course, or were originally of a feeble constitution." With regard to *sex*, the statistics based on Andral's cases, in addition to others taken from various sources, give a proportion of 89 males to 127 females. On this subject reference is made to the returns of the Registrar-General, which show that cases of paralysis, "which is probably the disorder that in these tables might be most safely taken to represent cerebral softening," are more frequent in females,—a conclusion not generally admitted. Although this result agrees with the statistics referred to, still it must be considered of little corroborative value. *Ramollissement* forms no item in the Registrar's reports; and the term "paralysis" is so loosely applied, that no scientific calculation should be based thereon. A preponderance of cases of softening occurs in advanced life; this fact is deduced from an analysis of 260 cases, as well as the authority of most writers. But we are of opinion that his proportion of juvenile cases (namely, 16 under twenty years of age), does not present a true ratio. Our author is himself inclined to this view, as he says, "the common opinion, that this morbid change very seldom affects the infantile brain, seems to require some modification;" more facts are required on this point. We have few statistics that can be relied on in reference to the influence of *occupation*. Allusion is made to the army reports of Major Tulloch, and the reports of the Registrar-General and other sources, but we think with very little profit, as nothing short of accurate and extended comparisons would suffice to give any clear decision. Our author, in concluding this portion, truly observes:

"It is indeed remarkable what a large proportion of these cases have an *individual* history, in which some circumstances bearing exclusively upon the patient have apparently occasioned the malady; either acting as a direct irritant on the brain, or else inducing its disorganization through the derangement of other organs."

Dr. Rowland accordingly proceeds to review the more *exciting* or direct causes arising from injuries to the brain or system by accident or disease. The influence of shock or injury to the head, he believes, increases the tendency to deranged action, rather than actually develops the disease. Mental causes, especially long-continued anxiety and distress, he deems, with Dr. Winslow, a cause of great frequency. Continued inebriation he considers, not as an immediate agent, but as leading, in the first instance, to chronic meningitic irritation, which ultimately engages the cerebral structure itself.

There is great scope for observations on the influence of

other diseases, more particularly in connexion with affections of the heart.

In a paper published in the London Medical Gazette, May 18th, 1849, Dr. Rowland presents some cases culled from various authors, suggesting the probability, "that morbid processes, involving the peripheral extremities of nerves, may excite disease in their central organ, in which the law of cross-action is observed as in palsy." Whether this be the true explanation or not of the occurrence, he has here adduced many cases of softening of the brain in connexion with, and supervening upon, disease elsewhere; and indeed the object of the paper referred to was really to show that softening of the brain in one hemisphere was connected with pneumonia of the lung of the opposite side; and he has brought forward cases from Morgagni, Rostan, Andral, Bright, De Chambre, Lallemand, Cruveilhier, and Durand-Fardel, which seem to bear out his opinion. The connexion with diseases of the heart, however, has been a subject of much greater discussion amongst pathologists. The experience of several authors on this point is given, and statistics from a small number of cases furnished, which would appear to show that hypertrophy is less influential than valvular disease,—if indeed the coincidence may not have been accidental; or, as Drs. Copeland and Watson suggest, the heart disease may not, in many instances, be regarded as "typical of general derangement of the vascular system." The coincidence of fatty degeneration of the heart and cerebral softening is evidently dependent on a general cause.

In connexion with this subject, our author has not alluded to Dr. Norman Chevers' able researches upon the effects of obliteration of the carotids upon the cerebral organ. This writer, in the Medical Gazette for October 31, 1845, adduces a number of instances where softening supervened, apparently from the obstruction to the cerebral circulation produced by the pressure of an aneurismal sac on the carotid, or by its ligature.

Besides pneumonia, softening is noticed in connexion with phthisis, but only as a rare phenomenon. Disorder of the digestive organs or the kidneys seems to have little effect.

The author notices, what we have several times observed in fever epidemics, the supervention of cerebral symptoms very similar to those of cerebral softening. The condition of the two cases is, however, extremely different. Many of these fever cases recover after a protracted convalescence; and besides the symptoms are too uniform in their character.

After referring briefly to some other influences, he notices, in closing this section, a large number of cases, where—



“The action of an exciting cause is not apparent, especially in the chronic form of the disease. But the oppression of the brain commences and is augmented slowly and gradually without the intervention of any circumstance acting as a shock on the system; and even when the symptoms undergo a sudden aggravation, it is not always possible to discover any cause to which the accession can with any probability be referred.”

Dr. Rowland next enters upon his inquiry into the true pathology of the disease. It is evident that this can be arrived at only after a strict examination of the entire phenomena of fully and accurately recorded cases, and a comparison of these with the symptoms and progress of cases of other diseases well known, but similar in their indications to the one under review. This examination must include a faithful statement of the morbid anatomy, as a *sine qua non*, under all phases and stages of the disease. It is plain that the information derived from a consideration of the symptoms and progress and the causes of the disease are totally insufficient to bring us to a proper decision; these will not tell us of its nature or pathology; they will not inform us whether the disease is inflammatory or otherwise; they cannot even decide for us its diagnosis, and much less a rational line of treatment. Our author is fully aware of the difficulty of the point to be investigated; at the same time he believes that the pathological facts “will justify the conclusion that there are several morbid processes which lead eventually to the disintegration of the cerebral texture, each of which it is of importance to recognise in a practical history of the disease.” The question then is, what is the nature of these processes? Are any of them inflammatory? and if so, what are the others? and how is each to be distinguished in practice? and lastly, can we lay down any rational basis for treatment? These are all important matters in the history of any disease, and, *à fortiori*, of this.

What steps have been already taken towards this wished-for goal? Let us see. In the first place our author takes up the coarser morbid anatomy of this affection; and we shall find that the most elaborate statements thus limited will fail to impart a clear view of its nature.

A table from Andral is given to exhibit the most common *seat* of the disease, from which we find that the anterior and middle lobes and corpora striata are affected in more than one-half of the cases cited. We think, however, the number from which the analysis is made is quite too small to supply a satisfactory conclusion. Indeed, this is evident, when we find authors of the highest eminence holding opposite opinions. Two points

are, however, certain: the extent of the lesion, which is almost always limited to a portion of either hemisphere; and secondly, when both are involved, one has a preponderance of disease.

The author justly objects to the importance which is too often attached to the mere *colour* of the softening, more especially when it is made the basis of a pathological theory. At the same time, the terms red, white, and yellow softening cannot be abandoned in our ordinary description of its morbid anatomy. The redness in what is called *red* softening is properly ascribed to various conditions, in which the blood plays the chief part. Thus it may arise from venous congestion, hyperæmia, extravasation, staining, and, what Cruveilhier has designated, capillary apoplexy. The condition, therefore, may be a sequence of an apoplectic explosion, venous congestion, true inflammation, or an accidental cause. It is plain that, to determine which of these changes is present in any given case, the unaided eye is quite insufficient. But if there be difficulty in determining this point in cases of red softening, much greater are the sources of inaccuracy in the instance of *white* softening, which, in some cases, may be readily mistaken for purulent collections: the microscope alone can inform us of the true nature of this form of the disease. Its characteristics have been clearly shown by the researches of Gluge and Bennett, who have discovered its inflammatory origin in the majority of cases; and when the inflammatory products are absent, other conditions, to which we shall allude presently, exist. The *yellow* softening, according to our author, represents very different morbid states. His own experience of this condition is thus described:—

“Confining the description to what I have myself witnessed, the following are the aspects which this species of softening may present:

“The softened mass may be free from foreign ingredient of any kind, the nervous matter being merely reduced to fragments. In one example of this kind, the diseased portion was of a deep glossy yellow colour when first exposed, but this appearance soon went off, and the yellow tint was changed into a dirty ash colour.

“Rokitanski says that the colour of this softening depends upon the infiltration of a thin fluid, which can be squeezed from the disorganized structure; and perhaps the loss of colour just referred to might have been occasioned by the subsidence of this fluid. The softened mass, however, usually retains its colour until putrefaction is far advanced, and does not part with it under any kind of manipulation.

“In other cases, the yellow matter is loaded with oil globules, which are deposited in the midst of the comminuted substance, and



may sometimes be detected in the vessels ramifying through it. Examples of this variety will be again referred to.

“The diseased structure is occasionally observed of rather a deeper hue, approaching a fawn colour. A specimen of this kind which I observed with Mr. Taunton was wholly made up of nerve fragments and innumerable blood discs. The brain surrounding the yellow mass was likewise softened to a considerable extent, but its natural colour was retained. In this latter portion, numerous oil globules were observed, and here and there an exudation corpuscle.

“These are probably but a few of the modes in which yellow softening may occur; but they are sufficient to show that the peculiarity of tint does not invariably represent the same morbid taint. Nor does it appear likely that the yellowness is always communicated by the same ingredient; but it may be sometimes derived from the admixture of the blood, at others from the presence of fatty matter, or from the presence of a yellow pigment otherwise derived.”

Having noticed the *dark* softening which occurs occasionally and chiefly in the medullary structure, Dr. Rowland goes on to consider the degree of *consistence* observable in softening. He objects to “the common methods of testing suspected portions,” and in this difficulty deems the microscope of essential service, which seems sometimes to present the only means of discovering the presence of disease. He then passes in review the principal cerebral affections found in connexion with softening, and which are necessary to be known, both to give a complete idea of the morbid anatomy of the disease, and to aid us in deciding upon its pathology. *Meningitis* is among the most common precursors. Some have considered this fact as infallible proof of the inflammatory nature of the cerebral disease, but evidently without sufficient reason, as the author shows most distinctly, that not only have the two diseases separate histories, but that, even in cases of softening occurring in acute meningitis, the affected spot may show no inflammatory product; and with regard to softening in the immediate vicinity of the inflamed membranes, in cases of acute hydrocephalus, the appearance of the softened texture is, he asserts, suggestive of “any condition rather than inflammation. It is pale, anemic, without even a trace of vascularity; and so far, at least as to its external characters, there is nothing to support this theory of its origin.” And with regard to the presence of the inflammatory exudations, there appears to be no uniformity of result. He here combats Dr. West’s opinion, founded on the coincidence of central softening with inflammation of the ventricular membrane, by a counter-statement, one generally admitted, that softening is much less frequent in simple than in the tubercular meningitis.

The relation of softening to cerebral congestion and apoplexy forms the next important subject for discussion. It is a matter of dispute whether the apoplectic attack is primary or secondary to the change of cerebral structure; certain it is that the records of pathology prove the frequent occurrence of apoplexy in previously healthy cerebral structure, and also that the most frequent seats of apoplexy are often reduced to a pulp, without the occurrence of extravasation.

Mr. Paget's views, published in the *Medical Gazette* of 1850, are here adduced, to show that the two diseases may possess a common pathology, namely, fatty degeneration of the vessels leading to the diseased part.

The writer's views as to the changes of the softened tissue, lead to the conclusion that the diseased part, at least in the apoplectic form, may be eventually repaired; "it is doubtful," he adds, "whether the material is renovated by the deposition of nervous matter, or by means of cellular tissue. But as the functions of the organ seem, in some instances, to be restored simultaneously with this action, it is reasonable to conclude that the natural tissue is, in a great measure, restored."

After noticing the "yellow patches of the convolutions," described by Cruveilhier as one of the results of the irritation set up by capillary apoplexy, Dr. Rowland proceeds to mention some of the terminations dependent on a previous softening,—such as cellular infiltration, in which the nervous texture is completely removed; a sieve-like appearance, noticed in the corpora striata, and ascribed by M. Rokitanski to atrophy of the cerebral tissue and obliteration of its vessels; induration, which is, however, not always the result of previous softening; and, lastly, a cystic structure, differing, in several respects, from the remnants of a clot.

Having thus recorded the most important facts known in the history of this disease, the author approaches the question as to its true pathology. He now attempts to answer the inquiry,—What is the true nature of the lesion? Our readers will be prepared at once to agree with him in his assertion, that one variety of the affection, at least, possesses "an inflammatory nature;" that it is, in short, "a local or partial cephalitis." The history, the symptoms, the causes, and the coarser examination of the brain, clearly pointed to this conclusion; and, consequently, many of the earlier writers at once maintained that view. But the microscopic researches of Gluge, Bennett, and others, placed the matter beyond all doubt. Exudation corpuscles and exudation granules were observed in a large proportion of well-marked and accurately recorded cases; and it is



not a little significant, that in those cases where the inflammatory product was not observed, the characteristic symptoms of softening were either imperfect or totally absent. Dr. Rowland, however, is inclined to believe, and we think justly, that Dr. Bennett has driven his conclusion a little too far. His deduction would be, that the inflammatory softening alone can properly be denominated morbid. Our author at once takes exception to this statement, and, we think, with good reason.

On this subject we wish to refer our readers to the seventeenth volume of the first series of this Journal, in which they will find that Dr. Law, in an able paper on disease of the brain dependent on disease of the heart, is led, beyond all question, to the conclusion, "that while ramollissement of the brain occurs as a result of inflammation, hyperæmia, &c., it occurs also under diametrically *opposite* circumstances."

These circumstances Dr. Rowland now refers to; and among the varieties of non-inflammatory softening he gives the existence of *fatty degeneration* the first place. The oil-globules can only be detected by the microscope; and they are observed under various conditions. They may be seen in the vessels, or the substance of the brain, or in both; and may be the consequence of some local agency affecting the nutrition of the organ; or may exist as an index of a general disease, implicating other organs besides. In this latter case the origin of the softening cannot be ascribed to disease of the cerebral arteries. Our author seems to consider that this condition of the brain is most frequent in the general palsy of the insane, in whom the principal characteristics of softening are frequently wanting.

Another origin of non-inflammatory softening has been previously referred to in noticing some of the exciting causes: we allude to the obstruction of the cerebral vessels by aneurism, or ligature, or ossification: or, as in Dr. Law's cases, by diseases of the heart, whose effect is either directly or indirectly to diminish the flow of blood to the head. We are authorised, therefore, to consider *failure of nutrition* as another source of a class of cases of softening.

Dr. Rowland but casually notices infiltration of the cerebral structure with serum as a cause. This view may be deemed as old as the time of Hippocrates, who had some idea of "a humidity of the brain" as the supposed cause of epilepsy. An examination of recorded cases, however, will show that this condition is extremely rare. The softening which is the result of meningitic irritation is frequently free from inflammatory pro-

ducts. How this arises, the author does not pretend to say. Instances of non-inflammatory softening, as the consequence of nervous irritation, commencing merely as a functional disturbance either in the centres or the periphery, complete the list of pathological causes.

It will be seen, then, what very different conditions may be present in different cases of this disease. Is it in our power to distinguish these differences during life? The author, in the few pages that he devotes to the diagnosis, too lightly touches upon this most important matter. He merely refers to a comparison between the apoplectic and the softening coma, and arrives only at a probability. When the attack is sudden, without warning, the chances are that it is apoplexy. In some cases, however, this will not suffice. He thinks the inflammatory softening may be known by the abrupt attack; the acute premonitory symptoms; the age and general appearance; and the fatty degenerative form may be suspected to exist in very aged cases, especially when the *arcus senilis* is prominently observed. But these general views must fail, in a great proportion of cases, to give the proper indication in practice. It may be, the facts are too few to enable us to determine the nicer shades of diagnosis; and we fear that, for some time to come, we must be content with a careful scrutiny of the history, especially in conjunction with the existence of concomitant lesions, to give us a clue to anything like a rational treatment.

The *duration* of the disease is very variable; statistics are given which show a greater rapidity in the progress than our author is willing to allow. As to the *termination*, we fear a too sanguine opinion of the chances of recovery is laid down, for it is stated that "even when the disease is advanced another stage, and the cerebral texture is disorganized, and the inflammatory products exuded, it is possible, under favourable circumstances, for a cure to be accomplished." Death, unfortunately, is *the rule*; and may take place by apoplectic coma, by gradual debility, in convulsion, or by pulmonary disease. The *prognosis*, therefore, cannot be other than unfavourable in the vast majority of cases, even in such as for a space appear to be ameliorated by time or treatment.

Some excellent observations, based upon the previous history of the disease, and relating to that important object of all professional knowledge, *treatment*, close the volume.

Dr. Rowland truly says:

"If the views respecting the pathology of the disease which have been adopted in these pages are correct, practical deductions sug-



gested by them must be, that softening of the brain cannot with safety be treated upon any uniform plan; on the contrary, the management must be varied by the form of the disorder."

He does not, nevertheless, adhere to this arrangement in his observations in this section, but considers the treatment under three heads:—*First*, that belonging to the precursory stage, in which he earnestly enjoins *mental rest*, the withdrawal of exciting causes of every description, purgatives, low diet, and even local depletion to be superadded in plethoric cases, and nourishment and a strengthening regimen in those of an opposite character. *Second*, the treatment necessary at the accession. This depends upon the character of the cerebral symptoms, and the state of the constitution. As to the propriety of depletion in the apoplectic seizure under these circumstances, the following judicious remarks are worthy of all attention:—

"It is," he says, "especially necessary to be guarded in the use of the lancet in the apoplectic accessions that sometimes are among the earliest symptoms, and which commonly chequer the subsequent progress of the malady. The character of those seizures might induce the practitioner to draw blood from the veins. Seldom, however, will this practice be found of any avail. The comatose symptoms are not often relieved by it, and I have more than once observed the worst consequences when this treatment had been energetically employed."

To "the indiscriminate use of mercury" he also strongly objects; though at the same time, in feeble and aged subjects he recommends, with some confidence, small doses of corrosive sublimate, which will "often act advantageously, without occasioning salivation or other sensible effects." On the other hand, he does not fail to observe that many cases will require tonics, stimulants, and a generous diet, despite our preconceived ideas of its pathology. And *third*, the treatment suitable to the confirmed disease. For this, we might suppose our utmost care unavailing; but the author (we think, too confidently) even here urges on our attention the capability of arresting the disease, and restoring the injured functions. Corrosive sublimate appears to be his sheet-anchor; but we confess we would rather have been presented with an abstract of the cases in which he found it useful, than with these assertions, however unhesitatingly given.

The section is wound up with a few remarks upon the use of iodine and Donovan's solution, which he considers objec-

tionable; arsenic and iron, which he has found serviceable; and opiates, the observations upon which deserve reflection:—

“ There are circumstances which not only warrant the administration of an opiate, but where considerable relief is derived from this class of medicines. It must be confessed, however, that the cases are not easy to discriminate, where the practice would be beneficial or otherwise. Singular as it might appear, the remedy seems to be most appropriate to the cases where the cerebral structure is extensively disorganized. Sometimes, when stupor or coma is threatened, a small dose of morphine, or a few grains of Dover’s powder, will ward off the attack. At an early stage of the disease, opiates are generally injurious, causing an aggravation of the symptoms that might continue for several days. Where it seems desirable to prescribe this remedy, the better plan is, to order it in small doses at first, until its effects in the individual case are ascertained.”

With this quotation we close our analysis of the work. Our readers will observe that we have devoted more than usual space to a volume professing to be little more than a compilation; we have done so, however, for the purpose of drawing attention to the history and characters of an interesting disease, to which but little reference has been hitherto made in the pages of this Journal. Dr. Cheyne, of this city, published observations upon it so far back as 1827, which will be found in the fourth volume of the Dublin Hospital Reports. Since his time, with the exception of a few scattered cases which have appeared in our pathological records, and the original paper of Dr. Law, already referred to, we can point to no extended notice of this remarkable malady. We have, therefore, taken this opportunity of bringing it prominently under the consideration of our readers.

In the fulfilment of the task which Dr. Rowland has undertaken, we are of opinion that he has given a most complete and faithful exposition of the characters of ramollissement of the brain. It is not his fault that the diagnosis and the treatment are not more exact and certain; he has presented a clear *résumé* of the knowledge of the present day, and as such, the volume will form a most useful compendium for the consultation of that large section of the profession who have neither leisure nor opportunity to collect the information at its original sources. But further, there is a suggestive tone, and an original cast of thought apparent in many portions of the work, which may be turned to good account by the discriminating reader. There is much, very much, to learn before our knowledge of this disease becomes of practical value. We want an



abundance of fully recorded cases, such as Bennett has so ably commenced. Even a few hundred such as these might be data sufficient to supply the following desiderata:—

First. The relative frequency of the pathological causes.

Second. Their association with disease in other organs.

Third. Their diagnostic symptoms.

Fourth. The rational indications for treatment.

We trust, then, that Dr. Rowland will not be content with the issue of this *brochure*, however useful and creditable in its limited aim; but that he will follow up a task so well begun, until he shall ultimately arrive at effecting an original and material advancement in the successful management of so intractable a disease.

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*Surgical Anatomy*. By JOSEPH MACLISE, Esq., Surgeon. London: Churchill. 1851. Folio.

THE last part of this important work has been recently issued from the Press, and in all respects fully equals its predecessors. We have before called the attention of both students and practitioners to the great advantage which Mr. Churchill has conferred on the profession in the issue, at such a moderate cost, of works so highly creditable in point of artistic execution and scientific merit,—thus placing within the reach of all what but a few years since were to be found only in our medical libraries, or in the collections of a few fortunate individuals. To all engaged in the study or practice of their profession, such a work as the “*Surgical Anatomy*” is almost indispensable. The provincial surgeon especially, often at a distance from a medical library, must have frequently felt the want of a work of authority for reference, when his long previously acquired anatomical knowledge began to have a certain hazy indecision, and want of confidence as to the precision of his recollections made him often unpleasantly anxious for the contingencies of an operation. The work of Mr. Maclise, which can be procured at an extremely moderate price, places in his hands the most lucid descriptions and accurate representations of the chief surgical regions, and we have no hesitation in saying, that it is as indispensable in the library of the country practitioner as it will be found welcome even in the collections of those who are within reach of the best supplied medical libraries of our larger cities.

To the surgical student Mr. Maclise has given exceedingly valuable assistance, but yet there are large opportunities for the further exercise of his talents, and great blanks still to be

supplied in the domain of illustrated medical literature. We have before directed the attention of this excellent artist to the requirements in the field of pathology; and to the enterprise of Mr. Churchill we would indicate this as a subject well worthy his consideration. The works of Cruveilhier and Carswell are, from their price, altogether beyond the reach of the student, and there are few even amongst professional men who can afford to have any of the highly illustrated works on pathology in their collection. We venture to say, that a series of pathological illustrations, exhibiting the more marked forms of disease, and accompanied by a letter-press description, would, if produced at the attractive price of the "Surgical Anatomy," command a very extensive circulation and a most successful career. In no department could a greater boon be conferred on the junior professional and student classes, who now manifest a growing taste for such studies.

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*The Descriptive and Surgical Anatomy of the Arteries, and the Relative Anatomy of the Veins and Nerves of the Human Body.* By JOSEPH HENRY CORBETT, M. D., Professor of Anatomy and Physiology to the Apothecaries' Hall of Ireland, &c. Dublin: Fannin & Co. 1852. 8vo. pp. 353.

FROM an early period in the history of the Dublin School of Medicine it has been characterized, in a very marked manner, by a constant and unremitting attention to anatomical studies. Anatomy has been truly said to be the basis of all medicine, and we have no doubt that the eminently practical character which our School has acquired for clinical medicine and surgery is, to a very considerable extent, due to the circumstance, that descriptive anatomy has been, from the commencement, prosecuted amongst us earnestly and diligently. Other Schools have, no doubt, established higher claims in the cultivation of General Anatomy, and won new fame by the additions made to this department of science; but with the Dublin surgeon, in the vast majority of instances, his education has commenced with a rigorous course of practical anatomy, and the results have been shown in the practical tendency of his clinical surgical researches. Even scientific anatomy, however, has been very fairly represented in our contributions to medical literature; and while the excellent works of Colles, Harrison, Flood, and Power have so much facilitated the study of practical anatomy, not alone in our own schools, but also in those of England and Scotland,—and, we might add, of America, where they have always commanded a most respectable position and extensive



circulation,—the researches of Jacob, Alcock, Carlile, Houston, and Hart have acquired considerable repute in the departments of physiological and comparative anatomy. It is deeply to be regretted that the example of these, our pioneers in the field of original inquiry, has not stimulated others to follow in the track they have marked out. This is a proper place to state our belief, that peculiar conditions have existed, and do still exist, in all those Schools where the more abstract branches of medical science have been energetically cultivated. The chief of these conditions are, the stimulus to exertion and the prospect of reward for labour which the numerous prizes of other Schools supply,—we need only allude to the instances of London and Paris: in both these cities all the pressure which rivalry, ambition, and emulation can bring to bear has been exerted to foster and bring forward youthful talent, give it an indication of paths of research to be followed, and hold up the stimulus of reward, and the more honourable and not less exciting influence of emulated energy. With us there are not, and there have never been, such stimuli; and it is no unfair induction to say, that the consequence has been the small amount of original inquiry in those departments which, without such aids, hold out but little prospect of reward for labour. Sufficient instances have, however, occurred to demonstrate, in the most satisfactory manner, that the members of the Irish School are in every way qualified to pursue this as well as other departments of research with ability and success; and we indulge the hope that, before long, exertions will be made to direct inquiry, and give a stimulus to the unemployed energies of our junior brethren. The work of Dr. Corbett comes under the same category as the descriptive books of which we have spoken. In his Preface he states, that—

“The title of this book indicates the plan on which it is arranged; during its preparation the author’s principal aim has been to fix the reader’s attention to the immediate object of his study; to avoid all matters calculated to divert the current of his thoughts; to describe the relations of each artery in a systematic form; to dwell chiefly upon the points most important to be learned by the student, whether engaged in ordinary dissection or in preparation for his final examination. It is also intended that the reader, when tracing the arteries, should experience assistance in acquiring some knowledge of the accompanying veins and nerves, without additional labour or loss of time. The operations upon the arteries are placed in a separate chapter, and can be referred to by the student who desires to understand the leading features of each operation; but the details of surgical practice have been withheld, as inconsistent with the design of an anatomical work of this nature.”

In the carrying out of this plan, the author has evinced considerable care, and an extremely judicious disposition of his matter. His style is easy, fluent, and well sustained; and the details of anatomical relations are given with order, clearness, and precision. In the account of the operations, we find, appended to each section which relates to the more important vessels, a short statement of the most noted occasions on which deligation has been performed. This is a useful and interesting addition, and will, no doubt, in many instances, induce the student to inquire more fully into the history of these operations,—a subject very much neglected.

*The Structure and Functions of the Human Eye, &c.* By SAMUEL BROWNE, R. N., M. R. C. S., Surgeon to the Belfast General Hospital and Ophthalmic Institution. Belfast: Agnew. 1852. 8vo. pp. 40.

AT the request of a committee of the leading gentlemen of Belfast, Mr. Browne was induced to undertake the delivery of two popular lectures for the benefit of a charitable institution, and in the little *brochure* before us we find the result of his labours. In medical literature, at least, this is rather a novel cause for the publication of a book, but, as it appears to us, one not only perfectly legitimate, but in the highest degree creditable and honourable to the head and heart of the writer; and it is our conviction of this that has induced us to notice a publication which, otherwise, by reason of originality of thought or scientific merit, would not come within the scope of our duties as reviewers of medical literature to bring under the notice of the profession. We do so, however, because we think Dr. Browne's efforts in the cause of charity highly laudable; and also because we conceive that the popularization of certain professional subjects, especially those of the anatomical or physiological departments, is well calculated to disseminate more enlightened views amongst the public, and to fortify them against the assaults of quackery. Those most open to imposition of all kinds are confessedly the ignorant; and in using this term we would beg to say, that it applies not only to the so-called lower classes, but that even an archbishop or a judge may come within its signification as far as regards departments of knowledge foreign to his own calling or profession. Dr. Browne has certainly taken a lead in enlisting science on the side of charity; and we shall not be surprised to learn that henceforth the *Charity Lecture* is as fashionably attended as the *Charity Sermon*.



## PART III.

### MEDICAL MISCELLANY.

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#### PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

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TWELFTH SESSION.—1851-52.

*Ischuria Renalis ; Urea in the Serum of the Ventricles of the Brain.*—Dr. Banks detailed the particulars of a case of ischuria renalis which had recently come under his observation in Sir Patrick Dun's Hospital, and which, in some respects, resembled a remarkable instance of this disease which he had brought before the Society during the past session.

A woman, aged 60, was admitted into Sir Patrick Dun's Hospital on the 9th of March, having laboured under suppression of urine for four days. Dr. Head, who had seen her before her admission into hospital, had introduced a catheter, but without drawing off any urine from the bladder.

When she presented herself for admission she was evidently in a state which indicated approaching death. She complained of pain of a very severe character in the abdomen, and even the slightest pressure was productive of much uneasiness. She gradually fell into a comatose condition, and died in a few hours, death being preceded by convulsions.

*Autopsy.*—The bladder contained about an ounce of urine, which became almost solid on the application of heat. The kidneys were large and congested, weighing eight ounces each, but in other respects they did not present any morbid appearance.

On examining the brain, about an ounce of serum was found in each ventricle, which, upon being subjected to the ordinary analysis, yielded crystals of nitrate of urea.

The particulars of the case of suppression of urine which Dr. Banks detailed at a former meeting of the Society are already on record, and he would merely observe now, that in both instances life was prolonged to a greater extent than is usual when there is *com-*

plete suppression of urine, and that in both, also, urea was discovered in the serum of the ventricles of the brain.

It is well known, he remarked, that urea has been detected in the blood and other fluids under certain pathological conditions, in which the functions of the kidneys are not duly performed; but Dr. Banks was not aware that its existence in the serum of the ventricles of the brain had been actually demonstrated before the case which he had just alluded to. Urea had been found in the serum of the ventricles, in a case of hydrocephalus, by Dr. Bostock, and also by Dr. MacLagan in certain forms of fever. In conclusion, Dr. Banks observed, that in the present instance death had followed the usual train of symptoms, viz., coma and convulsions; but the example of the disease which he had before communicated afforded a remarkable exception to what may be considered the ordinary termination of this formidable affection.—*March 22, 1851.*

*Aneurism of the Aorta.*—Mr. O’Ferrall exhibited a specimen of aneurism of the aorta, taken from the body of a man, aged 33, who applied at St. Vincent’s Hospital about eighteen months ago, complaining of nervousness and palpitations; he was remarkably anæmic, but not ill-nourished, being rather fat; he had neither cough nor dyspnœa; the pulse at each wrist was uniform in volume and in force, but in both had a peculiar vibrating feel, like a double pulse; the pulsations of the arteries at the root of the neck were visible, as also in the main arteries of the upper extremities. On examining the chest, a loud, double *bruit* was heard; the first was remarkably rough, and loudest at the middle of the sternum; the second was a similar murmur, prolonged and most distinct at the base of the heart, and a little to the left of the mesial line; both sounds were slightly audible at the back of the chest. The diagnosis given at this time was, that the aorta was dilated and rough, and that its valves permitted regurgitation. The patient improved under treatment so much that he was discharged from the hospital at the end of a fortnight, at his own request.

After an interval of fourteen months he returned for advice; he was now emaciated, had a most anxious countenance, great dyspnœa, and cough, which was so severe at night that he was obliged to remain sitting up in bed; the pulse was weaker than at the period of his first admission, but in other respects it continued as before; there were stridor, difficulty in swallowing solids, severe, shooting pain in the left shoulder, and the cough had a peculiar ringing character; with the exception of a slight shade of dulness about the middle of the sternum, the chest sounded clear; after he had been three days in hospital the dysphagia ceased, and the other symptoms were more or less relieved.

The diagnosis now given was, that the dilated aorta had become sacculated, and that the tumour arose from the anterior part of the vessel was rendered probable by the stridor, cough, and dysphagia; from the absence of permanent dysphagia, it was inferred that the tumour was small and placed in the middle line, and exerting its



pressure on the œsophagus only through the medium of the trachea; that the origins of the primary branches of the aorta were not implicated was evident from the pulse being equal in both wrists.

About three weeks ago the dyspnœa became so urgent that the patient was obliged to sit up in bed during the greater part of the night. One night, while in this position, he asked for a drink, but almost immediately laid down the cup and expired. Examination, *post mortem*, disclosed a small aneurism of the aorta, opening into the trachea; the latter tube was perforated by several small openings between the rings, giving it a cribriform appearance. The aorta was greatly dilated, and studded with calcareous deposits, which, no doubt, had originally a great share in causing the formation of the tumour. The heart was large; the left ventricle thickened; there was no lesion of the aortic valves, and their efficiency was tested by pouring water, and by blowing on them from the aorta; there was no evidence from dissection of a reflux current having been permitted during life, although the hypertrophy of the heart, and the general symptoms and physical signs, all taken together, leave very little doubt that such did occur.

Mr. O'Ferrall considered the case of interest, as being one of aneurism, diagnosed from symptoms rather than from physical signs; and also, because it was one of several cases which he had seen, in which, though symptoms and physical signs had, during life, led to the belief that a reflux current did exist in the aorta, yet, *post mortem* examination showed no permanent patency of the valves.—*November 22, 1851.*

*Encephaloid Tumour in the Cerebellum.*—Dr. M'Dowell exhibited a specimen and drawing of this disease, and gave the following history of the case:—A young man, a policeman, of temperate habits, was admitted into the Whitworth Hospital, November 1, complaining of pain in the back of his head, of a very peculiar character; it was exceedingly acute, and confined to the occipital region; it was also intermittent, occurring in severe paroxysms, during which he would roll himself in the bed, and call out to have his head pressed firmly; they recurred two or three times in the hour, lasting for about ten minutes each time; his manner had become altered; he sometimes raved at night, and endeavoured to leave his bed, but was at all times easily restrained; when free from pain he was perfectly rational; the bowels were torpid, the pulse slow, but the slightest exertion caused it to rise from 60 to 75; he had occasional vomiting, which, as it occurred with a moist tongue, and unaccompanied by epigastric tenderness, was considered to be sympathetic.

With respect to his previous history, it was stated that he had always enjoyed good health; but as long as he could remember, had been subject to pain in the back of the head, not acute, occurring for an hour or so each morning. About two months before his admission, however, it became very severe, and was of longer continuance at each attack; and, ten days before admission, it became so distressing that he was compelled to cease from duty.

The progress of the case was extremely rapid; on the fourth day after admission he had a slight febrile attack; his pupils were now observed to be dilated, and his hearing became wonderfully acute; there was no paralysis; and his intelligence was perfect, except during the height of the paroxysms of pain. On the fifth day erysipelas appeared on the left ear, and spread rapidly over the left side of the face; it was followed by most remarkable relief to the occipital pain; but there was, at the same time, great depression of the vital powers. On the sixth day, he became lethargic, and died in a state of coma in the evening.

Upon examination after death, there was discovered in the right lobe of the cerebellum a lobulated tumour, as large as a walnut; it was red and vascular on the surface, being covered by the pia mater; but internally it was of a greyish colour, and a fluid like whey escaped when it was cut into. It presented the character of encephaloid cancer. The surrounding substance of the cerebellum, with which the tumour was but loosely connected, was softened. The ventricles contained turbid serum in large quantity, and the entire brain was unusually vascular.

Dr. M'Dowell remarked that there were two points of especial interest in the case which he had just detailed, the first of which was the severe character of the pain, which, though dependent throughout on the presence of a malignant tumour within the skull, closely resembled an aggravated neuralgia. The occurrence of occipital headach in inflammatory affections of the cerebellum has been noticed by Andral, in his *Clinique Médicale*. The second remarkable circumstance was, the non-existence of malignant disease in any other organ or structure of the body. Dr. Hutton had, on a former occasion, shown a specimen of encephaloid tumours in the cerebrum and cerebellum, but malignant disease existed at the same time in other parts of the body.—*November 22, 1851.*

*Disease of the Ankle and Tarsus.*—Mr. Hamilton exhibited a specimen of ankylosis of the ankle-joint, combined with caries of the tarsal bones. The case was that of a man, aged 40, who had been admitted into the Richmond Hospital three weeks ago; the history and symptoms were those of ulceration, commencing in the cartilages. Three years and a half before, he was attacked with deep-seated pain in the joint, followed by swelling; two months afterwards an abscess formed and broke, and the opening became fistulous; a second appeared, and ran the same course; and at length a number of fistulous openings formed around the joint; the pain was at first occasional and dull, afterwards acute and constant; and startings of the limb frequently occurred at night. He became emaciated, and had profuse night perspirations. The foot was permanently extended, and no motion could be communicated to the ankle-joint; but although ankylosis had evidently taken place here, active disease was still going on in the tarsus; a probe passed through the fistulous apertures came in contact with loose portions of carious bone. The severity of the pain, and the rapid progress of the hectic



fever, rendered it necessary to amputate the limb: the operation was performed about a fortnight since.

The dissection of the limb showed that the process of true ankylosis had been completed between the tibia and the astragalus, and also between the former bone and the fibula; the lower portion of the shaft of the tibia was much enlarged. In the tarsal region there was a large suppurating cavity formed by the destruction of the navicular, and middle and external cuneiform bones, fragments of which lay loose in the abscess.

Mr. Hamilton observed that this was the third instance in which, after ankylosis had taken place, he had been obliged, nevertheless, to have recourse to amputation: in the two other cases the knee was the articulation implicated; in one, false ankylosis had taken place, but a fresh suppurative inflammation ensued, upon an accidental injury; in the other, the union was by bone; but twenty years after the date of the original disease an abscess formed in the bone, the constitutional effects of which rendered amputation necessary.—*November 29, 1851.*

*Adhesive Phlebitis.*—After referring to his published observations on the connexion between this affection and dysentery<sup>a</sup>, Dr. Mayne exhibited a specimen of adhesive phlebitis of the veins of the upper extremity. The case was that of a man, aged 29, who had been in hospital in February last, labouring under symptoms of incipient phthisis. After a few weeks he left the hospital, and returned to his business; he was very soon, however, seized with a severe bowel complaint, supposed by himself to be dysentery, and which persisted up to last October, when he again placed himself under Dr. Mayne's care, in consequence of the sudden supervention of pain and swelling in the right upper extremity; the pain, commencing behind the clavicle, and in the corresponding shoulder, was soon followed by œdematous tumefaction of the entire limb, which was hot, painful to the touch, and pitted imperfectly upon pressure. The deep-seated veins could be traced, hard and cord-like, under the integuments, and the superficial veins about the shoulder, the axilla, and the arm, were largely dilated, and by their blue colour and varicose appearance, at once attracted the attention of the observer. (A very faithful representation of these appearances, by Mr. Connolly, was exhibited to the Society.) For the few days during which the man survived, the bowel irritation seemed to supersede the chest symptoms. The stools, which were as many as from twelve to twenty in the twenty-four hours, were of an ochry character, and insupportably offensive.

At the *post mortem* examination, both lungs were found filled with tubercles, but there was no cavity of any extent in either. All the veins of the right upper extremity were filled with firm coagula, which adhered to the lining membrane, and retained a considerable portion of the colouring matter of the blood. These coagula, when removed from the veins, resembled portions of coral. The coats of

<sup>a</sup> Dublin Quarterly Journal of Medical Science, New Series, vol. x. p. 352.

the veins were thickened and opaque. These diseased appearances extended as far as the junction of the two venæ innominatæ; the right vena innominata was quite impervious, while the left, the superior cava, and the azygos, were free from any trace of inflammation. The examination of the small intestines was accidentally omitted, but the large intestines exhibited the appearances usually observed in the advanced stage of chronic dysentery; the mucous membrane was covered with ulcers, many of which in the rectum and sigmoid flexure of the colon were circular, with depressed centres and indurated margins.

Dr. Mayne expressed his inability to account satisfactorily for the disease of the veins in this instance. The combination of adhesive phlebitis with phthisis is so very uncommon, that it would not be justifiable to consider it in this case as connected with the pulmonary disease. Was it an example of idiopathic inflammation, or dependent upon the dysenteric affection? Dr. Lee has dwelt strongly upon the effects of pus in causing coagulation of the blood, and appears to lean to the opinion, that the coagula contained in veins suffering from adhesive inflammation may be produced by pus arriving at the veins in the course of the circulation.—*November 29, 1851.*

*Fracture of the Tibia and Fibula.*—Professor R. W. Smith exhibited a specimen of fracture of both bones of the leg, close to the ankle-joint, which had been presented to him by his friend Dr. Wade, who was acting as house-surgeon to the Derbyshire Infirmary when the accident occurred. The following was the history of the case:—A boy, aged 9, was severely injured on the 28th of August, 1851, by a portion of a wall falling upon his left leg; there was a large and deep wound, from which arterial blood flowed freely, inflicted upon the front of the limb, about two inches above the ankle-joint; a loose piece of bone could be felt in the bottom of the wound; and at its lower extremity (which reached to within an inch of the flexure of the joint), an osseous projection, covered by the extensor tendons, was discovered, and supposed to have been a portion of the astragalus. The fracture of the tibia was comminuted. At the seat of the injury the limb was increased in breadth; the leg was shortened, and the foot inverted. When the limb was raised, by taking hold of it at the knee, the foot was observed to retain the position already mentioned, from which the inference was drawn, that the fibula was uninjured.

In consequence of the injury which the soft parts had sustained, the exposure of the tendons, and the fracture of the tibia being comminuted and compound, it was determined upon by the surgeons of the Infirmary to amputate the limb, which was accordingly done in the usual manner.

The examination of the amputated limb showed the lower epiphysis detached from the tibia, and the bone immediately above it broken; a large triangular portion of it was detached, and several fractures extended upwards for two or three inches; into one of these longitudinal fissures some muscular fibres had been wedged.



With respect to the fibula, Dr. Wade stated, in his account of the dissection, that it was *partially* broken, about two inches above its lower extremity, and bent so as to present a convexity externally, and a concavity towards the tibia: this curve it retained even after maceration. Upon closely examining the specimen, however, it will be seen that, although the bone still retains this curved form, the fracture is *complete*, and as manifest upon the side of the concavity as upon that of the convexity: in the latter direction there is fracture, with separation of the fragments; in the former, fracture, with forcible approximation of the extremities of the fragments, the osseous fibres of which in this situation seem to be, as it were, dovetailed into each other, forming a kind of suture, of a most minute and delicate character, it is true, but sufficiently firm to enable the bone to maintain, even after maceration, the curved form imparted to it by the injury.

Professor Smith observed that, although he did not wish to be understood as denying the possibility of the occurrence of an incomplete fracture in early life, yet he was of opinion that in the great majority of cases of so-called partial fracture, the lesion of the bone was complete, and similar in its nature to that so well exemplified in the specimen which he had just exhibited to the Society; and that in these cases the bone retained its curved form, not in consequence of the osseous fibres upon the side of the concavity remaining unbroken, but from their becoming mutually impacted, and assuming a suture-like arrangement. It was possible, also, that the maintenance of the curve might be still further assisted by the animal matter of the bone remaining entire, although the osseous fibres may have yielded to the force, as happened in a case recorded by Wilson, in which he had an opportunity of examining the bone twelve hours after the receipt of the injury. The principal evidence adduced in support of the doctrine of partial fracture is derived from the symptoms noticed during life, in cases supposed to be examples of such an injury, namely, the curved form of the injured limb, the permanency of the curve, the force generally required to efface it, and the snapping noise heard at the moment when the limb resumes its normal form; but if it be true that the specimen just exhibited to the Society represents what usually occurs, and that the osseous fibres upon the side of the concavity are forcibly wedged together, there is no difficulty in explaining the persistence of the curve, or in accounting for the cracking noise heard when the bone is forcibly straightened.

Another description of evidence upon which the doctrine rests is derived from the *post mortem* examination of the bones, many years after consolidation has taken place, as in the cases recorded by Campre, Bonn, and others; evidence, however, of this nature is necessarily inconclusive; it being impossible to establish the doctrine in question, except by the examination of recent specimens.—*December 6, 1851.*

*Recent Endocarditis (Rheumatic).—*Dr. M'Dowell exhibited a specimen of acute inflammation of the heart supervening on chronic

disease. The case was that of a boy, aged 15, who was admitted into the Whitworth Hospital, on the 4th of September last, labouring under an attack of acute rheumatism. It was his first attack, but four years previously he had fever, since which he was said to have frequently complained of palpitations. On admission, he had not only rheumatic fever, but also rheumatic carditis. There was a friction sound to be heard over the heart, and also a bellows murmur, showing that both the external and internal serous membranes were inflamed: there was very little liquid effusion. The friction sound became gradually less distinct, and finally ceased to be heard on the 20th of October. It was last heard over the apex of the heart. On its subsidence, the endocardial murmur could be more satisfactorily examined. It was a loud, systolic, bellows murmur, audible over the entire of the præcordial region, but loudest at the apex of the heart. It was also distinctly heard over the base of the organ, and extended as far as the centre of the sternum. Its existence at the apex of the heart was regarded as an indication of the presence of regurgitant disease of the mitral valves, while the sternal *bruit*, which also accompanied the first cardiac sound, and was propagated along the sternum, might, it was thought, be referred to anæmia, or to an impaired condition of the blood itself, a supposition which the appearance of the patient rendered probable. The amount of dulness which remained after adhesion of the pericardium had taken place denoted that there were hypertrophy and enlargement of the heart. From the time of the accession of carditis the patient lived six weeks; ultimately he became dropsical, and died, worn out with dyspnœa and all the distressing symptoms attending the termination of extensive disease of the heart.

*Autopsy.*—The pericardium was everywhere adherent, except over a small portion of the apex of the heart. There was considerable hypertrophy, particularly of the walls of the left ventricle. The left auriculo-ventricular orifice was so narrow as to admit the point of one finger only, and the mitral valves were thickened. These appearances, Dr. M'Dowell believed, were owing to a morbid change antecedent to the last illness, which began but six weeks ago. The results of the final attack of endocarditis were seen in the presence of recently deposited lymph on the mitral and aortic valves: it appeared under a beaded form, giving a delicate fringed edging to the valves. On the aortic valves, it was more copiously deposited, forming a thick layer on the opposed surfaces. This, so far from rendering them inadequate, seemed to have the effect of making them meet more closely. Hence, none of the signs of aortic patency were present; but as the lymph on the aortic valves offered a slight obstacle to the free flow of the blood from the ventricle, a *bruit* was generated, which was systolic, and propagated upwards along the aorta. Recent lymph, in small quantity, was also effused on the tricuspid valves.

The chief points of interest in the case were, as Dr. M'Dowell conceived:—first, the occurrence of the cardiac affection prior to the rheumatic inflammation of the joints;—secondly, the short time in



which the recent attack of endocarditis proved fatal, when grafted on pre-existing valvular disease; and thirdly, that an organic affection of the aortic valves was attended with the same physical signs as those which usually denote an anæmic condition of the system only. —*December 6, 1851.*

*Chronic Cystitis; Renal Disease; Calculus in the Bladder.*—Mr. O'Ferrall exhibited the recent parts in this case, and having remarked upon the difficulty which the surgeon often experienced in coming to a conclusion as to the propriety of operating in cases of stone in the bladder, gave the following history of the disease in this instance:—A patient was admitted under his care, into St. Vincent's Hospital, with calculus in the bladder; the specific gravity of the urine was 1026; it contained a large quantity of albumen, together with blood and purulent matter; the urine itself was highly alkaline. These symptoms rendered probable the existence of cystitis with chronic nephritis; a good deal of the albumen was most likely derived from the blood and other foreign matters in the urine. Under treatment, the general health of the patient improved, and a second examination of the urine having been made, the albumen was found to have decreased much in quantity. Subsequent examinations gave very unequal results; but at length the urine became acid, and, when allowed to rest, deposited pus in small quantity, while the albumen was further diminished.

The question arose as to the propriety of operating now, and for several days the patient's fitness for undergoing the operation seemed to increase, when again the urine became alkaline, and pus, in large quantity, was deposited; in a few days, however, this unfavourable change ceased, but the improvement was of very short duration, and the urine resumed its former character. Its specific gravity always continued high. The results of each examination of the urine were so unequal, that no conclusion could be arrived at, as regarded the performance of lithotomy.

At length, the patient was attacked with peritoneal inflammation, which commenced in the left iliac fossa, and proved fatal in three days. The treatment adopted was as active as the strength would admit, but he derived most benefit from the free use of opium.

*Autopsy.*—A quantity of recently effused lymph was found in the left iliac fossa, extending thence to the transverse arch of the colon, and causing adhesion of the folds of the intestines. In the areolar structure of the iliac fossa, also, there was a deposit of purulent matter, which communicated, by a small, fistulous canal, with another purulent collection placed higher up. There was a third abscess surrounding the greater portion of the left kidney, the capsule of which was perforated by numerous small openings, which led into several other small, purulent collections. The kidney itself was much enlarged, and its cortical structure, in a great measure, absorbed. The ureter was greatly dilated for about two inches in extent; it then became contracted and tortuous, and its coats were

much thickened, when it again became larger, but not so wide as at its commencement. Here, then, was a stricture of the ureter.

The bladder presented the usual anatomical characters of chronic cystitis, and contained a large, oval calculus; the surface of which was composed of phosphates. The right kidney was quite healthy.

Mr. O'Ferrall remarked, that in this case there had been not only an intermission in the alkaline condition of the urine, but also frequent changes in the chemical constitution of that fluid. In all such cases, there is a difficulty in arriving at a correct diagnosis. Most probably, what occurred here was, that the morbid secretion being from time to time arrested at the contracted portion of the ureter, and thrown back, as it were, on the abscesses connected with the kidney, the urine which was voided came from the right kidney, the abnormal products in it, upon these occasions, not being more than could be fully accounted for by the amount of cystitis which was found to exist; but when, from relaxation, cessation of spasmodic action, or other cause, the contracted ureter allowed the flow of matter, &c., from the left kidney, the examination of the urine then gave evidence of the extensive organic mischief, already mentioned.

The case showed, in Mr. O'Ferrall's opinion, that the operation for stone should not be undertaken, nor, on the other hand, declined after one, two, or even three examinations of the urine.

Another conclusion might, Mr. O'Ferrall said, be fairly drawn from this case, viz., that when a patient dies shortly after the operation for stone, and we find, upon dissection, appearances, as here, resembling diffuse inflammation, we should be cautious in ascribing them to the operation. Had this man been operated upon, he would, most probably, have got a severe rigor and died in twenty-four hours; and the morbid appearances now enumerated would, without doubt, have been ascribed to the operation.—*December 6th, 1851.*

*Aneurism of the Thoracic Aorta.*—Dr. M'Dowell exhibited a specimen of aortic aneurism, taken from the body of a man aged 38; he had been a car-driver, and of very intemperate habits. About seven years ago, in consequence of a fall, he had received a severe bruise and concussion of the chest, but he considered himself perfectly recovered long since from all the effects of this accident. Early in November last he had a slight attack of fever, for which he was admitted into the Hardwicke hospital; in ten days he was considered convalescent. He now complained of pains between his shoulders, and an uneasy, aching sensation and stitches through his chest. A careful examination having been made, it was found that he had well-marked physical signs of aortic aneurism. There was perfect dulness on percussion over the upper part of the sternum, and extending across the cartilages of the true ribs, especially upon the left side. Between this dull portion of the chest and the naturally dull cardiac region below, there was a well-defined belt of



clearness. There was a strong impulse perceptible over the whole of the dull region above; when viewed sideways a heaving motion of the upper part of the sternum became evident, especially during the acts of expiration.

In the same region, a bellows murmur was heard at all times, but not always over the entire of it; it was frequently limited to the left side, and to a point corresponding to the junction of the second rib with the sternum. There was no venous turgescence in the neck; no cough, dyspnœa, or alteration of voice. There was a slight degree of dysphagia, which, however, had existed for only nine days previous to the admission of the patient into the hospital; he made no allusion to it until questioned; it continued until he died.

He was about a fortnight under observation, when, upon the 4th of December, he said he was better than he had been for some time; on that evening, however, and on the following day, he expectorated a slight quantity of blood; and upon Saturday evening he was suddenly seized with violent cough, and, exclaiming "that is the last cough I will ever give," instantaneously expired.

*Autopsy.*—The cavity of the left pleura was filled with coagula of blood, which weighed four pounds. The heart was forced across to the right of the sternum, and rotated upon itself, its posterior surface being directed forwards. A large aneurismal tumour occupied the upper part of the anterior mediastinum; it arose from the front of the aorta, just where the ascending and transverse portions of the arch join; it extended downwards and towards the left side, and bulged into the upper part of the pericardium; reached upwards to the vena innominata, and lay in front of the root of the left lung, to the upper lobe of which it had become adherent. It here burst into the pulmonary structure, and finally into the cavity of the left pleura, by a large aperture in that membrane, which was extensively detached from the back of the lung.

It will be seen that the position and size of the tumour are in accordance with the physical signs noticed during life, but the dysphagia remains to be accounted for. The tumour being remote from the œsophagus, it was difficult to account for the symptom in question, until the descending aorta was examined. This portion of the vessel was found to be extensively diseased, being covered with atheromatous depositions, and about three and a half or four inches from its commencement, a small aneurismal tumour was discovered, just at the first point of contact between the œsophagus and the thoracic aorta; when the parts were placed *in situ*, it was manifest that this small tumour must have pressed upon the œsophagus; this was the only direct relation which it had; it was, therefore easy to conceive that if this had been the only aneurism present in this case, dysphagia would have been the only symptom of the disease. When such cases occur, they have the usual signs of stricture of the œsophagus; and under such circumstances the incautious use of a probang has been followed, on the instant, by fatal consequences. —December 13, 1851.

*Congenital Luxations of the Radius.*—Professor R. W. Smith laid before the meeting a series of casts, drawings, and preparations, illustrating the various forms of congenital luxations of the upper extremity of the radius, as far as they were at present known, and made the following explanatory observations:

The subject of congenital luxations of the head of the radius has, of late years, received from pathologists, more especially in this country, a considerable share of attention; and communications have been made to this Society from time to time, descriptive of some of the forms of these peculiar malformations. Dupuytren<sup>a</sup> appears to have the merit of being the first to notice the original luxation of the radius, having met with an example of double luxation backwards and upwards; the appearances were precisely the same in each elbow-joint. Cruveilhier<sup>b</sup> has delineated the bones of the fore-arm in a case of the same description; but he does not consider either this or the instance recorded by Dupuytren to be the result of original malformation, being persuaded that they should be looked upon as luxations, the result of accident, and left unreduced. A similar explanation has been given by Sandifort<sup>c</sup> of a case of luxation backwards, delineated in the “Museum Anatomicum.”

In 1840, Mr. Adams exhibited to this Society a cast of the luxation upwards and outwards; and in 1849, a nother of the luxation backwards and upwards. All the cases, however, to which I have alluded, labour under this disadvantage—that some are deficient in the history during life, while in others the *post mortem* examination is wanting. In 1850, I brought before the Society a specimen of the congenital luxation forwards, which, I believe, was the first instance in which observations on the living were combined with anatomical investigation, and both sources of information brought to bear upon the subject; and I have to-day to exhibit another example of congenital luxation of the radius, to which also the advantage attaches of having been carefully observed during the life of the individual.

In this instance, the position of the fore-arm was similar to that noticed in the case of luxation forwards; it was flexed at a right angle, with the hand midway between pronation and supination; it could be slightly extended; but whenever an attempt was made to bend it beyond a right angle, the motion was at once arrested by the anterior margin of the lower end of the humerus, striking against the neck of the radius; neither pronation nor supination could be performed fully, but a greater amount of the latter motion was permitted than of the former. The head of the radius could not be felt during any of the motions, or in any position of the articulation. The elbow-joint was singularly deformed; the condyles of the humerus projected to a considerable distance upon either side of the articulation; the external was remarkably prominent, curved inwards and forwards, and elongated, descending in the semiflexed position of the joint below

<sup>a</sup> Diseases and Injuries of the Bones. Sydenham Society.

<sup>b</sup> Livr. ix.

<sup>c</sup> Tab. ciii.



the level of the olecranon process, and passing that of the inner condyle by at least three-quarters of an inch. The fore-arm was short, compared with the length of the arm, and the shaft of the ulna terminated an inch above the radio-carpal articulation.

The man stated that the deformity had existed from his earliest recollection, and that he did not remember having sustained any injury of the joint. He died of a chronic affection of the lungs, and a careful dissection was then made of the malformed limb.

There was no capitulum upon the humerus, and but a very imperfectly formed trochlea, which was separated from the outer condyle by a large, deep, glenoid-shaped cavity, the surface of which was smooth and polished like ivory; it was formed principally at the expense of the outer condyle, which presented the elongated and curved form already described; the long or vertical diameter of this excavation was an inch and a quarter in length; it formed a polished socket, which lodged the equally polished, but deformed head of the radius, which, as in the case of congenital luxation forwards, which I exhibited upon a former occasion, was applied by an irregularly flattened surface to the lesser sigmoid cavity of the ulna.

Both bones of the fore-arm were of equal length above; but the ulna terminated an inch above the wrist; from its atrophoid lower extremity a strong ligamentous structure passed down to be attached to the lower end of the radius and to the cuneiform bone.

The absence of the capitulum of the humerus, the short fore-arm, the radius and ulna being of equal length superiorly, the arrest in the development of the lower end of the ulna, and the history of the case, constitute sufficient evidence of the congenital nature of the malformation in this instance, which is to be looked upon as a form of original luxation of the head of the radius, now for the first time described, as far as I have been able to ascertain; it is a displacement of the head of the radius directly upwards, or longitudinally with respect to the humerus.

Professor Smith next drew attention to a cast of the upper extremity, showing another form of congenital luxation, in which the upper end of the radius was displaced laterally and outwards; it resembled the two cases which he had already described, namely, the luxation forwards and that upwards, in the semiflexed position of the fore-arm, the semipronated hand, the arched form of the bones, the loss of the normal relation as to length between the radius and the ulna, the alteration in the form of the head of the radius, and the arrested development of the ulna, which ceased an inch above the wrist.

The patient, an adult male, and of weak intellect, stated that the joint had never been the subject either of accident or disease. He died of phthisis, in Sir Patrick Dun's Hospital; but an unfortunate train of circumstances occurred, which prevented the examination of the limb. This, however, is the less to be regretted, as ample opportunities had been afforded of establishing the nature of the deformity, the man having been for a long time under Professor Smith's

care, in the Richmond Hospital; and he was so emaciated that there was no difficulty in ascertaining the condition and relations of the bones.

The radius descended an inch below the ulna, and above far surpassed it in length; it was nine inches in length, while the ulna was only six; its upper extremity was separated from the olecranon by an interval of at least two inches; the olecranon occupied its normal position with respect to the humerus; but the radius passed upwards and outwards in such a manner that that portion of its shaft corresponding to the tuberosity rested upon the external surface of the shaft of the humerus; the head of the bone was of a flattened, oval form; and the lower end of the humerus had no capitulum. The skeleton of this man presented examples of original malformations of the opposite upper extremity, and of both lower extremities. This was the second instance of congenital lateral luxation outwards of the upper end of the radius, which Professor Smith had seen. The appearances were precisely similar in each case.

A series of casts and drawings were next exhibited, illustrating congenital luxations backwards and upwards; two of the casts represented the right and left arm of an individual in whom the displacement was double, as in the case recorded by Dupuytren; in both of these the upper end of the radius was on a level with the summit of the olecranon; while in a third the head of the radius passed the level of that process; in all, the lower extremities of the bones preserved their normal relative length.

Upon reviewing the history of the casts and preparations which were now placed before the Society, it would be seen, Professor Smith observed, that there was one character common to them all, namely, that, no matter in what direction the displacement of the head of the radius might have occurred, in every instance the capitulum of the humerus was either partially or altogether deficient. It appeared reasonable, therefore, to consider this arrest of development as the primary lesion, the essential character of all these malformations of the radio-humeral articulation. The abnormal length of the upper end of the radius was, most probably, consequent upon this malformation of the humerus, and was another feature which almost all these cases presented in common.

The following table gives the varieties of congenital luxation of the head of the radius hitherto observed, and the names of the authors who have noticed them.

Backwards.—Sandifort.

Backwards and upwards, upon both sides.—Dupuytren, Smith.

Backwards and upwards, upon one side.—Cruveilhier, Adams, Nelaton, Smith.

Forwards and upwards.—Adams.

Forwards.—Smith.

Laterally outwards.—Smith.

Upwards.—Smith.

—*December 20, 1851.*



*Aneurism of the Thoracic Aorta.*—Dr. Mayne presented a specimen of aneurism arising from the front of the transverse portion of the arch of the aorta, and extending over to the left side. The patient, a man aged about 45, had been for a year and a half under observation in hospital; he had been a law-clerk, but not over-worked; never had syphilis, nor ever taken mercury. About two years ago (in October, 1849), he was rather suddenly seized with dyspnœa and pains, which were of a rheumatic character.

In June, 1850, when Dr. Mayne first saw him, he was complaining of severe cough, of a peculiar hoarse, raucous character, which gave the idea that the man was suffering from disease of the larynx, but, on examination, no other symptom of laryngeal disease could be detected. The voice was natural. He also complained of pain of a neuralgic character in the left shoulder, shooting to the acromion and along the superior intercostal spaces; it was intermittent, but never completely disappeared. In addition he had dyspnœa, which, scarcely perceptible when he was tranquil, became distressing whenever he was hurried or ascended a height. He was sensible of a continued obstruction about the windpipe, and pointed to the upper part of the sternum as the seat of the affection. The pulse was similar in strength and character in both radial, brachial, and carotid arteries. There was no turgescence of the jugular or of the other veins in the neck.

The action of the heart was regular, and without any abnormal sound. At the upper third of the sternum there was dulness, which extended over the costal cartilages on either side for about two square inches; there was no *soufflet* here, but two sounds were heard as in the heart, and a little later than these in point of time. There was an impulse, which was single, but stronger than that of the heart; both impulse and sounds diminished as the stethoscope was moved towards the heart, and again increased in the true præcordial region. Both sides of the chest were equally resonant on percussion, but the respiration in the upper part of the left lung was more or less bronchial both in front and posteriorly, and at the base of the lung it was not at all so clear as the resonance on percussion would have led him to expect. After some months the tumour in the upper sternal region became much more decided; it was visibly pulsatile, and the seat of a constant, dull pain. The pulsation was diastolic. The note taken in November of the same year was, that the pulse and double sound continued, and that there was no *soufflet*.

He was again carefully examined in April, 1851, when it was found that the left side of the chest had become smaller than the right; the ribs seemed crowded together, and the whole side contracted, very like what takes place after the absorption of a pleuritic effusion. The contraction continued to increase; in August the affected side was less than the opposite by two inches; and shortly before death the difference had increased to three inches. In October it was noticed that the left side had also become contracted in the

vertical direction; the shoulder had advanced, and the angle of the scapula had started from the side. The right side was preternaturally clear on percussion; the left was also clear, but there was a slight shade of difference between the two in this respect. In addition there was no true respiratory murmur to be heard in the left lung, except at its most inferior portion; at the upper part, both in front and posteriorly, it was bronchial or tracheal, and there was well-marked resonance of the voice. The heart was now displaced towards the left axilla. There were, in fact, all the appearances usually observed after the absorption of a large pleuritic effusion of the left side; yet of this disease he had none of the general symptoms, neither had he those of cirrhosis of the lung. The conclusion, therefore, arrived at was, that the left bronchus was compressed by the aneurismal tumour.

There was never any hemorrhage, but the tumour gradually approached the surface, and the integuments became thin and discoloured, and sloughing seemed at hand; he died, however, without the sac having given way either externally or internally.

*Autopsy.*—The aneurism was found to have arisen from the ascending portion of the thoracic aorta, before the giving off of any of the great vessels; it was double the size of an orange, and had caused absorption of the sternum and of portions of the costal cartilages upon either side. It had extended downwards towards the left lung, compressing and flattening the left bronchial tube. There was a slight and recent pleuritic effusion on the surface of the left lung. The mucous membrane of the œsophagus was ulcerated in two or three spots. There had been no dysphagia; but towards the close of the case the man had complained of pain in swallowing solids. The aortic valves were healthy.—*December 20, 1851.*

*Abscesses in the Brain.*—Dr. Gordon exhibited a specimen of very extensive disease of the brain. The subject of the case was a strong labouring boy, sixteen years of age, who was under observation for one week only before his death. On the 6th of December he was sent to the Hardwicke Hospital, as being affected with fever. Dr. Gordon saw him on the following morning, and his attention was at once drawn to the position in which he lay in bed: his head was drawn back, and the body arched forwards. There was great rigidity of the muscles of the neck, but no alteration of sensibility. The temperature of the entire body was higher than natural; the skin was also very dry. He had raved during the previous night, but his intelligence was now perfect; he said he had felt generally unwell for the last seven days, and two days ago was obliged to give up work in consequence of severe headach. The pain in the head was now most intense; it was strictly limited to the occipital region, and was constant, but was not increased by pressure or motion. His pulse was 100, and small; he had vomiting, without any epigastric tenderness. His tongue was white and moist; the pupils were irregular, and did not contract under a strong light. He was treated for meningeal inflammation, but symptoms of coma very rapidly set in; from these



there were two distinct intermissions, each of about eighteen hours' duration, when he again complained loudly of the pain in the occiput. He had constant gay delirium; but was perfectly rational when spoken to. For twenty hours before his death, which occurred early on the 11th, the coma was profound.

*Autopsy.*—On removing the calvarium and dura mater, the upper surface of the brain seemed perfectly healthy, excepting that the pia mater was a little more vascular than natural; but on raising up the brain from the base of the skull there was found a large quantity of greenish-yellow lymph, completely covering the pons varolii and the top of the medulla oblongata, and extending for a very short way along the spinal cord. On lifting up the brain a small abscess, which was situated in the right middle lobe, near the surface, gave way; it contained about an ounce of thick, greenish, purulent matter; the dura mater corresponding to it was perfectly healthy; there was no disease of the bones of the head.

On further examination of the brain, it was found that it contained five distinct abscesses: they were situated, one in the anterior lobe of the right hemisphere; one in the middle lobe (before mentioned); and three in the left hemisphere. One of these was in the posterior lobe; the remaining two near the convex surface.

These abscesses were all well-defined and encysted; the lining membrane being exceedingly thin, but very distinct and vascular; the matter contained in them was thick, and of a very dark olive-green colour. The cerebral substance surrounding them was slightly softened; the abscess in the anterior lobe of the right hemisphere had burst into the lateral ventricle. The cerebellum was not diseased.

Dr. Gordon thought that the case afforded a good example of the extent to which disease might advance in the brain without giving rise to urgent symptoms. Those which did exist were, in his opinion, owing to the meningeal inflammation which was present at the base of the brain, and to the matter making its way into the cavity of the ventricle.

Dr. Gordon referred to two cases related by Abercrombie, where the symptoms of cerebral disease were apparent for only three days before death. In one, a man aged 43, three abscesses were found in the brain, one of which had burst into the left lateral ventricle. In the brain of the other, five distinct abscesses were found. Dr. Abercrombie refers to two cases recorded by Morgagni and Dr. Powel, in each of which a large abscess was found in the brain; and yet in neither of these instances had there been during life any symptom of cerebral disease. And lastly, Dr. Gordon quoted from the case-book of the Hardwicke Fever Hospital the following case, which occurred under the care of the late Dr. Crampton, and which he had himself closely observed during life and examined after death:—

A strong, healthy-looking labourer, aged 23, was admitted into the Hardwicke Fever Hospital, August 1, 1839. He had always

enjoyed perfect health until the present time. He was seized, a few days before admission, with the usual premonitory signs of fever,—which, however, soon passed off, and he was transferred to the convalescent ward on the 6th. He remained in bed on the 7th, complaining of numbness in his right arm; on examination, it was found to be completely paralysed. The sensation remained perfect. There was scarcely any constitutional disturbance; his pulse was slow. On the 9th he became comatose; his pulse 46 in the minute; he died on the night of the 11th; and upon examination after death, there was found slight serous effusion into the cavity of the arachnoid, and great vascularity of the pia mater. In removing the brain, a quantity of pus flowed out from an abscess in the anterior lobe of the left hemisphere. There were eight distinct abscesses in the cerebrum; they all contained a quantity of greenish sero-purulent matter, and varied in size from that of a large walnut to a small hazel-nut. They were all lined by a thin vascular membrane; the left lateral ventricle was filled with matter from an abscess in the posterior lobe having burst into it. The cerebellum and bones of the skull were healthy. Two of the abscesses were situated in the anterior, and one in the middle lobe of the left hemisphere. The right hemisphere contained two in the anterior, and two in the middle lobe; they were all in the substance of the brain, near its convex surface.—*December 20, 1851.*

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*Cases from Practice, with Observations.* By S. BROWNE, Esq., R. N., M. R. C. S. E., Surgeon to the Belfast General Hospital, and the Ophthalmic Institution.

CASE I. *Case of Cleft Palate*<sup>a</sup>.—Among the many congenital defects to which mankind is liable, that of cleft or fissured palate is not the most unfrequent, nor the least distressing. The imperfection materially affects two of the functions of life,—one of daily necessary action, namely, deglutition; the other required to maintain our social relations, viz. articulation. Both of these actions require a perfect condition of that part of the mouth named, “velum palati,” or soft palate; for when this structure is either absent at birth, or is destroyed by disease, swallowing the food is often a most distressing necessity, and speech is so deformed, if I may use the expression, that the unhappy subject of the defect is no less startled by his own discordant sounds than the listener is pained to hear the abortive attempt. This, unlike some other congenital or acquired imperfections, cannot be concealed, or the functions with which it interferes be kept in abeyance, but daily, almost hourly, reminds the poor sufferer that he is a disagreeable member of society. Fortunately, the

<sup>a</sup> Read before the Belfast Medical Society.



resources of modern surgery have found a remedy, and offer an almost certain means of either alleviating or doing away with a deplorable affliction; and this knowledge should impart consolation to the sufferer and his friends, when it is known that he need not necessarily remain the subject of a defect once regarded as irremediable.

The operation for cleft palate, "staphyloraphy" or "velo synthesis" as it has been named, is one of the triumphs of surgery, many of which our age has happily witnessed, and for which the world is indebted to bold and scientific practitioners. Within the last few years the operation in question has been much improved by the genius of Professor W. Fergusson and others, and has been repeatedly performed with complete success on the Continent, in America, and in this Kingdom. The following case, which I think presents some novelty, is that of a female, the daughter of a respectable farmer in the county of Down; she is twenty-four years of age, and is now in perfect health, although in early life she was the subject of a very severe strumous affection. I believe her relatives never imagined there was any probability of having the defect under which she laboured remedied, until a professional friend in Belfast submitted her for my opinion, when I at once advised the operation which I afterwards performed. The steps of that operation I shall presently detail, premising that they who have either witnessed a similar operation, or have read the cases published, will not perceive that I have departed from the usual method pursued, save in two respects, and these I hope I shall not be considered presumptuous if I deem improvements. In the first place it is essentially important that the patient about to be operated on should be most anxious for the undertaking, firm, and resolved to second the efforts of the surgeon in every way, and prepared for a tedious and distressing operation. In these respects I was most fortunate in my patient, for greater determination in the prospect of the proceeding, and sustained resolution throughout, could not possibly have been exhibited, and I must bear testimony to her possession of courage and strength of mind I have never seen surpassed. Besides having a patient with the qualities just mentioned, it is necessary to see that all the functions are in healthy action, and that the natural strength is brought up to as high a standard as the individual case will admit. I think the patient should be under observation for ten days or a fortnight, during which time a species of training should be pursued so that the palate may become accustomed to being handled, and the patient habituated to endurance.

The instruments and appliances I used were, a fine scalpel with a sharp point; curved and straight forceps; scissors; short, curved needles, with an instrument for the purpose of carrying them through the margin of the parts about to be brought together; a pair of pliers; strong, waxed ligatures, eighteen inches in length; a few metallic beads, softened, and a number of small, fine sponges. The needles I had made were three-quarters of an inch in length from the eye to the point, with about an additional eighth of an inch beyond

the eye, which was received into the socket of the holder, and were considerably curved; the holder was something like that used for crochet needles, the slide being moved by a strong silk thread, which was attached to another slide working along the handle. I may here mention, that in the present case the fissure extended from the hard palate to the point of the uvula, dividing the velum into nearly two symmetrical portions, and was one inch and a half in length.

Having the various instruments noticed in readiness, I seated my patient before a good light, resting her head against an assistant's breast, who stood behind her. I then carefully pared off the margin of each division of the palate down to the points of the split uvula, and extended the incision a quarter of an inch above the point of separation and upon the margin of the hard palate. Smart hemorrhage followed these incisions, and it became necessary to wait for ten minutes, during which time the patient was gargling and rinsing out the mouth and throat with iced water. The bleeding having ceased, I carried a needle, threaded with a double ligature of silk, through the left side of the soft palate, about one-eighth of an inch from its margin, and midway between the edge of the hard palate and the point of the uvula. I then seized the needle, drew it forward, after detaching it from the holder; again fixed and carried it through the opposite side, brought the needle out and unthreaded it, having then on one side of the mouth the "bight" or doubling of the suture, and, in the other, its two ends: and thus with each point of suture in succession. The steps just related were attended with some difficulty, and the eccentric motions of the sides of the palate, and the trickling of blood into the throat from the punctures, with a profuse secretion of viscid saliva, kept up so much irritation as to cause considerable delay; the first suture, however, having been passed and secured, the succeeding steps were greatly facilitated. I now beg to direct attention to the method I adopted to secure each suture after it had been passed successively, as I have demonstrated: I seized the "bight" of the ligature, and passed one of the ends through it, then, by drawing gently on each of the ends, alternately, the edges of the palate were brought into accurate apposition. I next passed both ends of the suture through a metallic bead, pushed this close up to the palate, and then pinched the bead with pliers so as to securely fasten the suture. The five points of suture which I found it necessary to use having been properly secured, I observed that there was great tension of the soft palate, and a drawing of it upwards and backwards towards the posterior nares; to obviate this action and remove the tension, I made two incisions, extending obliquely outwards and backwards from the edge of the hard palate, and from within half-an-inch of the recently joined velum to within three-fourths of an inch of the arches or margin of the soft palate. These incisions were nearly an inch in length, and divided through the entire structure of the palate on either side between the points just mentioned; so soon as they were made, the drawing-up of the palate immediately ceased, and all tension on the sutures was over-



come, while two gaping wounds, at least a quarter of an inch wide, were left.

The patient was now made to gargle out the mouth freely with iced water, and was removed to bed, the attendants being desired to give her milk and cool tea in small quantities if she complained of thirst.

Six hours after the operation I was pleased to find that she had slept, and was quite comfortable, all irritation having entirely ceased, the palate remaining quite passive. Next morning the parts looked very well; there was no undue redness or swelling; and the edges of the wound seemed in due apposition, while the palate was quite passive, save a slight motion in the uvula; the lateral wounds were suppurating. On that day she had good beef-tea, jelly, milk, &c., freely given to her; and I may remark, that she continued to take similar nourishment during the first four days. Everything progressed most satisfactorily, and on the evening of the third day after the operation, I removed three of the points of suture, leaving the two central still in; these, however, I removed on the following day, at which time the central wound had completely united, while the lateral incisions were nearly filled up by granulation. After this date my patient had solid food, with porter, for dinner.

The operation, the steps of which I have just related, was necessarily tedious and painful, in consequence of the irritation caused by coming so much in contact with the back part of the tongue and fauces; if, along with this, the patient were to become unsteady, great difficulty would also attend it. There are two points in the operation now detailed to which I wish to direct attention: the first is the method by which the sutures were fastened, namely, by passing one end of a double ligature, after it had been carried through the opposite sides of the palate, through its duplicature or "bight." This method, in my opinion, greatly facilitates the "rendering" or *free* action of its two parts in coming closely together, and thus effecting true apposition of the pared margins of the palate, without any risk of tearing or cutting through its substance. It has been recommended to use a single ligature, and fasten it by running one end through a simple knot on the other part, and thus draw the two portions closely together; but there is this objection, that should the thread be uneven, it is likely the knot would jam too soon, and thus the suture would become useless. I am not aware that the method I recommend has been alluded to or put in use before.

The other point in my operation to which I would refer is, the manner in which I made the lateral incisions, for the purpose of overcoming the action of the palatal muscles, and the consequent strain upon the sutures. Whether a similar plan of division has been before practised, I am not prepared to say; but I have not seen it clearly stated in any work, what should be the extent or direction of these incisions. I consider, however, that those I made are best calculated to facilitate union by the first intention—which is the surgeon's aim—as from their direction and extent they completely

divide the *levator* and *tensor* palato-pharyngeal, and probably some fibres of the *palati* muscles, on each side, and thus prevent any action that could possibly interfere with union.

The nicest and most difficult part of the operation is paring the entire margin of the cleft accurately, because whenever an attempt is made to seize the palate its muscles are thrown into action, and produce the most extraordinary eccentric motions, drawing the half velum up towards the nares and twisting the uvula in a very surprising manner. Hence arises the question, should not the muscles be divided in the first instance? Perhaps they should; but, beyond rendering more easy the process of paring the edges of the cleft, I question whether such a step would facilitate the other parts of the operation; indeed I am disposed to think that if it were performed first, neither could the needles be so easily passed, nor the wound be brought so accurately in apposition; besides which, the surgeon cannot tell, *a priori*, to what extent the lateral divisions of the palate should be made,—hence, were I to operate again in a similar case, I should pursue the course I have already marked out. The system of starvation after the operation, insisted on by some writers, is altogether needless, especially if the lateral incisions be made, for then it is impossible that the smallest disturbance of the wound can take place in the act of swallowing fluids. This has long since been pointed out by Sir Philip Crampton and Mr. Fergusson; consequently, there should be a liberal supply of nourishing fluid food given during the first few days of the cure, after which solid food may be safely taken.

The sutures should not be left in too long, as they may cause deep ulceration; they should not, I think, be removed earlier than the third day, or later than the fifth. Six weeks have elapsed since the operation, and already my patient has felt the great benefit conferred by it, as the act of deglutition is unattended, as formerly, with any unpleasant results. With respect to the improvement in speech, there has scarcely been sufficient time yet to promote it, as a course of careful training is usually required to overcome the previously acquired habits of articulation; yet there is, doubtless, an appreciable change for the better in the tone of the voice even now.

CASE II. *Case of Strangulated Femoral Hernia, with Effusion of Serum into the Abdominal Cavity; Operation; Recovery.*—On the morning of Friday, the 8th of August, 1851, I was called to see a patient some miles from Belfast; the messenger who came could tell me little more than “that the person had been ill for some days with vomiting and stoppage in the bowels,—with a lump in the groin, for which he understood that some operation would be required.” Believing, from this, that the case was one of strangulated hernia, I carried the requisite instruments with me. On my arrival I found a female, of about sixty years of age, and of a weak, delicate appearance, lying on a bed, suffering great pain, and at intervals rejecting from the stomach the fluids which her thirst constantly demanded. On examining the egesta I found in the fluid a mixture of bile and feculent matter; and inquiry led me to learn that the bowels had not



been relieved since the previous Tuesday,—during which time more or less vomiting had prevailed,—but the symptoms had greatly increased from Thursday morning. In the right groin I found a tumour about the size of a large walnut, very hard and painful to the touch, while the abdomen was very much swollen, and quite tender on pressure; pulse quick and weak. Attempts at reduction having frequently been made during the previous day by the medical gentleman who had been in attendance, I considered that any further effort of the kind was quite out of the question, and I determined, therefore, to operate at once. I had not any one to assist me, as the only surgeon in the neighbourhood was unavoidably absent in attendance upon an urgent case; however, as there was present a steady, intelligent female, who offered to “make herself useful,” I had the patient removed to a table covered with a blanket and sheet, and commenced. Division of the integument,—in a line with the fold of the groin,—and successively of three layers of fascia, brought me to the hernial tumour, which, now freed from the pressure of the fascia that had bound it down, projected forward, covered by its investing sac. The sac having been carefully opened, a knuckle of intestine presented, of a very dark greenish hue, yet still retaining its polished surface, and without any odour of decomposition; a small quantity of deeply-coloured fluid escaped at the same time. On making examination for the seat of the stricture, I found that the neck of the sac was very tightly bound by an unyielding fascia, at the upper and inner side of which the finger-nail could be passed beneath its sharp edge. As I could not at any point introduce a director, I pressed the point of the index-finger firmly against the stricture, with the nail beneath its margin, and then carried a very fine probe-pointed bistoury on its flat surface along my finger until its point was at the barrier, when, by withdrawing my finger a little, and pressing the bistoury gently backwards, its point got beneath the tense edge of Gimbernat's ligament, which a very slight turn and pressure of the knife upwards and inwards served to divide; then a little further use of the knife completely freed the neck of the sac, and permitted the prolapsed intestine to be returned. After the gut had been pressed up, on withdrawing my finger, it was followed by a stream of a straw-coloured serum, which continued to flow until fully fifty ounces had escaped. I then brought the wound together with four points of suture, and applied a compress and bandage; the patient was removed gently to bed, and strict quiet was enjoined. The fluid which had escaped from the abdomen, on standing for some time, became of the consistence of thin jelly, but was again rendered fluid by agitation; it also formed a firm coagulum upon the addition of nitric acid, or the application of heat.

Ten hours after the operation I visited the patient, and found that the fluid from the abdomen had flowed away during the interval, and had completely saturated a folded sheet placed beneath her; her bowels had acted twice, pretty copiously; still there was much swelling of the abdomen, with great tenderness; her pulse was

stronger and less frequent than before the operation; and on the whole she not only looked but expressed herself as feeling better, though some irritability of the stomach still remained. As she had not passed any urine since immediately before the operation, and now felt a desire to do so, but without the power, I introduced the catheter, and removed twelve ounces of highly-coloured fluid. Before leaving, I ordered two grains of calomel, with five of Dover's powder, to be given every three hours, and bran stupes to be constantly applied over the abdomen. Next morning the patient went on pretty favourably, though there was not any marked change for the better; the bowels had once again acted, yet the bladder continued unable to expel the urine, but the catheter was passed with immediate relief; the tenderness and tumefaction of the abdomen were still present, though perhaps in a less degree, and the irritability of stomach quite gone. I desired the powders to be continued as before, with a like application of the moist, warm bran. The following day the patient, I found, was restless, heated, and complaining of great difficulty of breathing; the pulse was quick and intermitting; the tongue furred and dry, with urgent thirst; the abdomen greatly swollen and tympanitic, but not so tender, and the bladder still paralysed. Under these circumstances, and as the bowels had not acted since early on the previous morning, I ordered an enema, containing castor oil and oil of turpentine, each four drachms, mixed in thin gruel, to be administered immediately, and to be repeated in three hours if the swelling of the bowels was not greatly reduced; I also directed an active diaphoretic mixture to be given along with the powders, which were to be continued. On the evening of Tuesday, the fourth day from the operation, I found that the former urgent symptoms had nearly all subsided; the tension and tenderness of the abdomen had almost disappeared; and the patient complained of little, save the inability to void her urine, and of general weakness. The mouth on this evening was observed to be affected, and the system under the influence of mercury; consequently, the calomel was discontinued, save two grains at bed-time along with ten grains of Dover's powder. Beyond a slight diarrhœa, which appeared on the sixth day, there was little in the aspect of the case to cause any further uneasiness; the patient gradually gained ground, the wound healed up, the bladder regained its tone, and at the end of three weeks she was able to leave her bed and to be removed into the open air.

*Remarks.*—The case just related has some points about it which induce me to publish it for the information of the profession, as I deem it the duty of every surgeon to lay before his brethren whatever in practice strikes him as possessing novelty or interest. The time the strangulation had existed, the extreme narrowness of the aperture through which the intestine had escaped, and the great discoloration of the latter, with the urgent and dangerous symptoms that preceded and followed the operation, yet succeeded by a fortunate result, constitute, in my opinion, a case which is of practical importance, and will, I trust, be deemed of some interest. With regard to the fluid which



escaped from the abdominal cavity, I cannot, of course, determine at what period it was effused; but, from the history of the patient up to the day the strangulation occurred, namely, three days before the operation, and also from the symptoms throughout, I am led to believe that the effusion took place between Tuesday and Friday, and was the result of peritoneal inflammation, of course, not of an active character. In conclusion I may remark, that all medical men must have observed how frequently cases of a similar kind occur within a limited period; and in illustration of this I may state, that the case under consideration was the fourth of strangulated femoral hernia which had come under my notice within a few months: in one the hernia was reduced after most persevering trials; in the others an operation was required; and in each was followed by a favourable result.

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*Cases of Traumatic Phlebitis followed by Gangrene, and requiring Amputation.* BY CHARLES CROKER KING, M.D., M.R.I.A., Professor of Anatomy and Physiology, Queen's College, Galway.

WITHIN the last few months two cases of gangrene, consequent upon traumatic phlebitis, have fallen under my care in the County of Galway Infirmary.

The first was that of a boy aged twelve years, admitted into the hospital on Thursday, the 3rd April, 1851. On the previous day a heavily-loaded railway waggon had passed over the centre of his left arm, fracturing the bone, and severely contusing the soft parts. A small but deep wound was situated exactly over the ordinary position of the humeral artery; the hand was cold, and there was paralysis of sensation in it and in the fore-arm, both of which were slightly swollen. The question immediately arose as to the cause of the diminished sensibility and reduced temperature—was it referrible to injury of the artery, or of the nerve, or of both? A director could be passed through the lacerated skin and fascia down to the site of the brachial artery. There had been little or no hemorrhage at the time of the accident, and on admission into hospital there was neither internal nor external bleeding; it was consequently considered prudent to endeavour to re-establish the circulation in the limb by the application of artificial heat; the fore-arm was wrapped in flannel, and bags containing hot salt were placed in its vicinity.

On the following day some hopes of the recovery of the limb were entertained, as its temperature appeared to have risen. These, however, proved fallacious, for the increased temperature was the result of the external application of heat, and not of restored circulation.

On the following day, the œdema had increased, and there was considerable venous congestion; dark-coloured vesications appeared on the limb, which was evidently rapidly running into a state of gangrene; the face was flushed; pulse 120; tongue furred; he had raved during the night.

On the fourth day, the fever had abated, the pulse had fallen twelve beats in the minute, and he had passed an easier night.

The following morning the pulse had fallen to 82, and the patient's general condition was altogether improved; gangrene had not spread; and it was circumscribed by a bright red margin, which, subsequently ulcerating, formed a distinct line of demarcation.

On consultation, it was determined that, as the symptoms were not pressing, it would be more prudent to postpone the removal of the limb, than to run the risk of renewing the severe irritative fever which had only just abated.

On the tenth day from the receipt of the injury the following was the condition of the patient: tongue clean and moist; pulse 82; soft parts on the anterior aspect of the limb have given way, and both the upper and lower fragments of the humerus protrude; integuments and soft parts on the posterior aspect retain their vitality nearly as low down as the elbow; the slightest motion causes extreme pain, and there is a most abominable fetor from the wound.

On consultation (the consent of the parents having been with much difficulty obtained), it was determined to remove the limb, which I accordingly did, the patient having been previously placed under the influence of chloroform, which produced anæsthesia, but not insensibility, as he appeared conscious of everything but pain. During the operation, the brachial artery, and also some branches of the profunda, sprung, and had to be tied.

Examination of the limb exhibited a transverse fracture of the humerus; the upper fragment also presented four vertical fissures; brachial artery and median nerve sound; injection thrown into the former filled the radial and ulnar arteries. The coats of the venæ comites of the brachial artery were thickened, and the cavities obliterated for the extent of two inches.

The subsequent progress of the case did not present any remarkable feature; wound healed by granulation; recovery was progressive and satisfactory.

CASE II.—Patrick Quinn, aged 50, a car-driver, who confessed that he was formerly of intemperate habits, but for some months past boasted that he had become a reformed character, had abjured ardent spirits, and placed himself on the restricted allowance of eight pints of ale in the twenty-four hours, was admitted into the Infirmary on Thursday evening, the 14th August, 1851. Three days previous to admission, while in a state of intoxication, he fell from a coach-box, and received a severe contused wound, in the right popliteal space, from a horse's shoe.

The right limb is enormously swollen, from Poupart's ligament to the foot; the site of the injury is marked by a contused wound, two inches long, in the popliteal space, and from which, by pressure either above or below, fetid gas escapes; limb below the wound deadly cold, insensible, and marbled over by congested veins; several dark-coloured, flaccid vesications have arisen. Tongue clean. Pulse 70.



The removal of the limb was proposed, but would not be submitted to by the patient.

On the 17th of August, the limb, from the knee down, having become green and gangrened, and the patient having abandoned all hopes of its being saved, consented to its removal. Tongue still clean. Pulse 70. Sleeps little, and complains much of pain.

At four o'clock, on the 17th August, the patient having been placed under the influence of chloroform, I amputated the limb; the femoral artery was commanded by pressure below Poupart's ligament. Very little arterial blood was lost, but there was free venous hemorrhage from the limb below; the operation was performed in a short space of time; the femoral artery and collateral branches were quite pervious; the only unusual circumstance noticed was, that the femoral vein, when divided, remained open like an arterial mouth.

Examination of limb showed the popliteal artery uninjured, injection thrown into it filled the tibial branches; the popliteal space was filled with putrid blood and pus. The coats of the popliteal vein were thickened, and its caliber completely obliterated. Veins below dilated and varicose. The operation was succeeded by partial sloughing of the stump; however, under appropriate, local, and constitutional treatment, this entirely ceased, and the stump presented a healthy and clean surface. My attention, during the entire progress of the case, was attracted by the following facts, namely, that the stump was flabby, and that the patient appeared as if weighed down by some heavy, mental load; he was continually desponding, and was restless and dissatisfied in every position.

Matters, with the above exception, went on favourably, until the 29th August, the twelfth day after the operation; up to this period the tongue was clean, and the pulse 70. On this day, the patient was reported to have had a severe rigor, and to have vomited a quantity of bile.

During the succeeding days, the patient's state may be briefly summed up; the vomiting continued at intervals for some days, and then ceased. The rigors were *intense*, and were repeated once, twice, or three times in the twenty-four hours. They were succeeded by a hot stage, during which the pulse usually rose to 150 in a minute; on the termination of the paroxysm by sweating, the pulse invariably fell to 70.

7th September.—Since last report the above symptoms, with the exception of the vomiting, continued with increased severity. The tongue became brown, the skin sallow, the features pinched, respiration laborious, hiccough, and low, muttering delirium supervened, and he expired on the twenty-sixth morning after the receipt of the injury, and three weeks after the date of the operation.

*Post mortem examination.*—Femoral artery obliterated from the site of the ligature to the first collateral branch. Saphena vein, for four inches from the face of the stump, and also the femoral vein, for the same distance, had their coats thickened, and their cavities

completely obliterated; above this, both veins contained disorganized blood and pus. Iliac veins perfectly healthy.

Purulent deposition, to the amount of several ounces, was found in the cavities of both pleura. Surfaces of pleura covering posterior lobes coated with semi-fluid lymph. *Surface* of lungs corresponding to the lymphic exudation, of a bright mulberry colour, with several spots of hepatization, and small, purulent deposits in the substance. Liver and other abdominal viscera perfectly healthy.

In the above case, the situation of the wounds, directly over the main arteries of the limbs, in the first instance, at least in the boy, Brennan, suggested the idea that the passage of blood through the humeral artery was interrupted, and in consequence an attempt was made to establish collateral circulation; the failure of this expedient, and the continued swelling of the limb<sup>a</sup>, accompanied by evidences of venous congestion, and the formation of bloody vesications, however, convinced me that the gangrene was not caused by diminished arterial supply, but by venous obstruction. The presence of the above symptoms, in the case of Quinn, at the time of admission, for the same reasons, notwithstanding the position of the wound, induced me to come to the same conclusion; for, had the supply of arterial blood been intercepted, I would have expected to find the limb dry and shrivelled, as we see in cases of gangrene from arteritis, or in the course of malignant fevers. In these latter cases, it is well known that if amputation be performed, frequently no ligatures are required, the vessels having been all obliterated; whereas, in both the cases detailed, the usual number of vessels had to be secured.

From these facts, would we be justified in arriving at the following general conclusion?

That in severe injury of a limb, even though the principal lesion be situated over the main vessel, if the limb be, in the first instance, cold and insensible, and subsequently should become congested, and œdematous, and vesications arise, the obstruction is to be sought for in the venous and not in the arterial system.

The flabbiness of the stump in the case of Quinn is worthy of remembrance. I have often noticed this absence of healthy, adhesive inflammation in the persons of habitual drunkards; and also that the contractile power of the arteries is much diminished, and that blood drawn coagulates feebly. I have frequently observed, also, that in such patients slight wounds continue to bleed for an unusual length of time, so much so, that blood can be obtained, *ad libitum*, by cupping, and there is frequently a protracted oozing of blood from leech-bites; that from the tendency which mercury has to reduce the quantity of fibrine in the blood, such patients bear the administration of this mineral badly; and that, when inflammation does arise, either spontaneously or from injury, it frequently presents itself in the form of erysipelas, or of diffuse or other forms of inflammation,

\* A distinction, of course, should be drawn between œdematous swelling, and that caused by extravasated blood.



in which there is little disposition to the effusion of healthy, coagulable lymph.

The deposition of purulent matter in the substance and on the surface of the lungs, in the case of Quinn, is in strict confirmation of the views and experiments of Cruveilhier, who attributed the purulent deposits, which so frequently occur in phlebitis, to the arrest of the pus corpuscles in the first capillary net-work which they encounter in the round of the circulation: hence the situation of the purulent deposit in this case; whereas, if the phlebitis had existed in any of the viscera whose veins contribute to form the portal system (if the above views be correct), we might infer that the purulent deposit would have been found in the substance of the liver; which organ, however, did not exhibit any evidence of disease.

The *perfect* intermission of the febrile symptoms in the case of Quinn is interesting,—proving, as it does, that such intermission is consistent with the presence, not only of serious, but even of fatal disease.

I am inclined to consider that a closer analogy than is generally conceded exists between diffuse inflammation and phlebitis; at all events, these two forms of disease occur in the same description of habits, and are attended with a very similar train of symptoms; purulent deposits are frequently found in connexion with both; and diffuse inflammation frequently results from the inoculation of the products of phlebitis, and *vice versâ*.

I mentioned that, in both of the above cases, I used chloroform. In the case of Quinn a train of symptoms, which I have frequently remarked, presented themselves during the stage of excitement which preceded the full anæsthetic effect, namely, that irregular ideas connected with his ordinary habits rapidly passed through his mind;—he called for a drink and for his pipe, and acted as if engaged in the management of a refractory horse. I had occasion lately to administer chloroform to a woman of the town; at first she became much excited, and favoured us with expressions and gestures more characteristic than elegant, and which at once removed any doubt as to the nature of her calling.

A short time ago I removed a toe and a portion of a metatarsal bone from the foot of a child of about three years and a half old; the little patient was placed under the influence of chloroform in a few seconds. I allude to the case as I am aware that some practitioners entertain doubts as to the propriety of using anæsthetic agents at so early a period of life; its action was most satisfactory; after the operation she inquired if the toe was off, and, when answered in the affirmative, she appeared surprised and gratified.

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*Case of Tetanus; Chloroform Inhalations; Recovery.* By J. T. BANKS, M.D., M.R.I.A., King's Professor of the Practice of Physic, Physician to the Whitworth and Hardwicke Hospitals, &c.

PATRICK REILLY, a coach-painter, aged 22, was received into the Whitworth Hospital on the 14th of August, 1851. He was a man

of rather powerful frame, and had been in the enjoyment of excellent health all his life, up to the commencement of his present malady.

Two months before his admission he had been very severely wounded in the fore-arm by a drill; the wound, however, healed in the ordinary course, and without any unusual or untoward symptom, leaving a deeply-puckered cicatrix of more than an inch in length.

Nine days antecedent to the accession of the disease under which he now labours, he received a kick on the nose in a drunken brawl, and lay out in the open air at night for some hours, exposed to wet and cold, being at the time in a state of intoxication. The wound of the nose was a slight lacerated one, but there was considerable ecchymosis of the eyes and face generally. After the receipt of this injury, he remained apparently well for nine days, until the 7th of August, when he felt languid and restless, with an irresistible propensity to yawn: headach and constipation of the bowels were also present.

On the following day he experienced a sensation of stiffness in the muscles of the back of the neck, with soreness of the throat and some difficulty in deglutition. Gradually the muscles which move the jaw became rigid, and by the close of the next day (9th August) the group of symptoms constituting trismus was completely established.

On admission he presented the ordinary characters which appertain to tetanus in its most aggravated form. The sterno-mastoid muscles were very rigid, and stood out prominently, the head being retracted. The body was arched, its weight being supported chiefly by the occiput; the abdominal muscles were tense and hard. He complained of a sense of constriction and oppression of the chest, with pain of the most excruciating kind under the xiphoid cartilage. For the last three days the lower jaw was, at intervals, carried spasmodically and with violence against the upper; the state of opisthotonos being at the same time augmented. In the condition of comparative relaxation, the handle of a spoon could with some difficulty be introduced between the teeth. The exacerbations generally occurred at the moment of his falling asleep, causing him to start in extreme alarm, and thus producing a most painful and distressing watchfulness. The face was flushed, and of a livid hue; skin hot; pulse 120; bowels constipated; urine scanty and high-coloured. A slight degree of facial paralysis was observed, one of the eyes remaining partly open under all circumstances. Croton oil was administered, and acted fully, the dejections being dark-coloured and peculiarly offensive; and a quarter of a grain of extract of belladonna was directed to be given every second hour. 15th August.—A marked increase in the intensity of all the symptoms; the jaws are now closely and *permanently* locked; respiration performed with excessive pain and considerable difficulty; face and body immersed in copious sweat. One grain of extract of Indian hemp to be given every hour. 16th and 17th.—No marked diminution of the severity of the symptoms; restless and uneasy; frequent recurrence of spasms.



It was now determined to administer chloroform by inhalation, with a view to produce relaxation of the spasmodically-contracted muscles; chloroform was accordingly inhaled until perfect anæsthesia was produced. On restoration to consciousness, the patient was able to open his mouth to the extent of fully an inch; swallowed with ease a pint of milk with eggs beaten up in it; expressed himself as feeling much relieved in all respects, and soon fell into a calm sleep, which was not, however, of long duration.

On the morning of the 18th the chloroform inhalation was repeated, and followed by a most unequivocal amelioration of all the symptoms; the tetanic expression of the countenance to a great degree disappearing, and the muscles of the abdomen becoming relaxed.

19th.—A drop of croton oil was given, which abundantly relieved the bowels. The Indian hemp was now discontinued, as the patient complained of a sensation which he compared to commencing intoxication; the chloroform inhalation as before.

20th.—The spasms were of a severe nature, and of frequent recurrence from 10 o'clock last evening until 6 o'clock this morning, after which he got some hours' quiet sleep. As the spasms attacked the patient in the evening almost exclusively, it was decided that the chloroform should now be administered in the evening and not in the morning.

21st and 22nd.—Decided improvement; remissions much longer, and the spasmodic paroxysms far more mild.

23rd.—A long, calm, and refreshing sleep after the chloroform. From this date there was progressive and uninterrupted advance towards recovery; spasms very slight, and only at night up to the 28th, after which they did not return, but the tetanic expression of countenance continued.

Debility and stiffness of the muscles remained for some time, but after two or three warm baths all traces of the disease disappeared, and in a few days he was discharged from hospital restored to perfect health.

*Remarks.*—Was this case one of traumatic or of idiopathic tetanus? This question I have repeatedly asked myself, without being able to arrive at a satisfactory solution, for here we have the two causes co-operating, which we know to be potent in the production of the disease, namely, a wound, and exposure to the combined influence of cold and moisture.

I am disposed to look upon it as traumatic; but mayhap the wound would not in itself have been sufficient to cause the disease but for the addition of exposure to cold and wet. We know that both, combined and acting together, are more formidable than either singly. The time which elapsed is strongly in favour of the disease being traumatic,—indeed, almost conclusive. In this case, I have no hesitation in attributing the successful issue to the use of chloroform; and its effects were such as should lead us to expect the most satisfactory results under similar circumstances. Up to the moment of its administration, the symptoms were positively proceeding from

bad to worse,—the remedial measures which were being employed making no impression on the disease.

The records of periodical literature, home and foreign, present a goodly array of facts proving the salutary influence which chloroform exercises on the course and termination of this most appalling malady. In some instances relaxation of the muscles, soon followed by sleep and subsequent recovery, were the results derived from inhalations of chloroform only once employed.

Dr. Neligan has directed my attention to a recent number of the "*Bulletin Général de Thérapeutique*," in which Dr. Baudon relates a most interesting case of tetanus, in which the use of belladonna and opium was carried "*jusqu' à la saturation*," without producing any good effect; finally, chloroform was had recourse to with manifest advantage. To quote his own words:

"Le malade est dans un état pire que jamais. Les symptômes sont effrayants; on ne peut introduire le moindre médicament dans la bouche.

"A peine s'il pousse quelques cris. L'opisthotonos est arrivé à un point extraordinaire, et le renversement des muscles du cou en arrière fait saillir fortement le cartilage thyroïde.

"Le rachis se courbe en avant, l'oppression est extrême, les douleurs sont intolérables dans tous les muscles, ceux-ci sont durs comme du bois. Devant des phénomènes aussi alarmants je songe aux inhalations anesthésiques. Une demi-minute suffit pour le plonger dans un sommeil profond, qui dure une demi-heure, et pendant lequel les traits du visage expriment une sensation indéfinissable de bien-être."

In conclusion, he goes on to say:

"A partir seulement de l'inhalation j'ai obtenue un bon résultat qui ne s'est pas démenti. A dater de ce moment, les muscles se sont relâchés peu à peu et la guérison est venue."

In the majority of cases, as in the example before us, the oft-repeated application of the anæsthetic inhalations was required to produce the curative effect. I ascertained, in the treatment of the case I have detailed, that the inhalation of a moderate quantity of chloroform was adequate to produce relaxation of the muscles, so that latterly we never prolonged the inhalation to the extent of inducing anæsthesia.

It is not my object at present to discuss the treatment of tetanus, but simply to report the facts of a highly instructive and interesting case, and to strongly urge upon others to give chloroform a full and extensive trial in similar cases. I am far from claiming for it the power of curing tetanus in all instances; but even when there is a tendency from the first to a fatal termination, we have still an agent at our disposal which has the power of allaying pain and spasm for a season, and of rendering the last moments of life comparatively free from suffering. I am persuaded that, upon all who witnessed this case, a deep impression was made, and one not easily to be effaced. As for myself, I shall not in future hesitate to have recourse









to the chloroform treatment from the earliest moment, believing that all other remedial means are of secondary importance. And even in those cases in which we cannot expect that our efforts are likely to be crowned with success, we shall, at all events, enjoy the high gratification of making "smooth the path which leads to dissolution."

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*Case of Monstrosity*<sup>a</sup>. By JAMES BOWER HARRISON, M.R.C.S.E., formerly Surgeon to the Ardwick and Ancoats Dispensary, &c., Manchester.

It is proper that cases of a singular nature should be recorded in our repositories of medical literature, at the same time that it is borne in mind that the value of information is properly in proportion to its practical applicability. It is in some measure, however, necessary for the right estimation and appreciation of customary morbid phenomena, to know that occasional deviations arise; and sometimes such deviations may in themselves be the subjects of considerable solicitude. From such considerations, it seems to me that the following instance of monstrosity may be deemed worthy of a brief attention.

On the 10th of January, 1849, about seven o'clock in the evening, I was summoned to attend a poor woman who was in labour, and whom I had not previously seen. When I arrived at the house, I found that she had already gone to bed, and was suffering from the usual pains. On making a vaginal examination, I perceived that the membranes were protruded in an elongated tumour, but I could not detect through them any part of the child by which to ascertain the nature of the presentation. The pains were pretty good, and returned at short intervals; so that, after some little delay, the membranes burst, and a considerable quantity of water was discharged. The water exceeded in quantity the usual amount, so that a good-sized chamber utensil was speedily filled with it, notwithstanding a portion had been lost on the floor. I then made a further examination, when, to my surprise, I felt a soft tumour presenting, which resembled the bag of membranes, previously to its rupture. This apparent bag became tense during the existence of the labour pains. As there was no hemorrhage, it could not easily be confounded with the placenta; nor did it, to the touch, so much resemble the placenta as the ordinary membranes. Being undecided in what light to regard this soft tumour, I began to feel carefully round it, passing my hand for this purpose fairly into the vagina. During this examination a quantity of water continued to flow. At length I discovered a hard substance, partially concealed behind the tumour, and resting closely against the parietes of the uterus. After some perseverance, I contrived to insinuate my hand still far-

<sup>a</sup> The case was read before the Royal Medico-Chirurgical Society of London, by Dr. Vesalius Pettigrew, for the author.

ther into the vagina, so as to examine the hard body more completely, and to my satisfaction, found it to be a leg. Though it was considerably distorted, I was enabled to recognise the foot, and to put my finger on its soft plantar aspect. By this time the pains seemed almost gone, but whenever they returned, in any appreciable degree, I made traction with a ligature which I had succeeded in passing round the foot. I already imagined that the foetus was a monstrous growth, which opinion was corroborated by the palpable distortion of the foot. The pains continuing to be feeble, I administered a drachm of the ergot of rye, in divided doses. After this, the pains improved, and the traction which I made seemed gradually to bring down the foot. I was soon enabled to run my finger to the top of the thigh; but here, instead of feeling the genital organs, or the other leg, I felt a substance which resembled the body of a child, which might be conceived to have only one leg, and no organs of generation. The soft mass was still to be felt. I continued to make traction, gradually increasing my efforts as the pains became more of a bearing-down character; and endeavouring, as far as it was possible, to suit the direction of the body to the ordinary turns which are made in cases of foot presentation. After some time, the vagina became filled with the mass of parts described, and eventually they came through the os externum, the rest of the body following, although in a most curious state of distortion.

It was now evident that the foetus was a monstrous growth; the soft mass being formed by a kind of hernial protrusion of the abdominal viscera. On examination, I found that the navel-string had broken off close to the part which corresponded to the umbilicus. After some little delay, I removed the placenta with the hand, having previously secured a healthy contraction of the uterus. The whole was accomplished by about ten, or half-past ten o'clock, P. M.

I had now time to look more accurately at the appearance of the foetus. The head was naturally formed; and the shoulders, arms, and chest were all natural. The abdominal parietes were deficient below the umbilicus; the skin seeming to part on each side, so as to permit the hernia of the bowels.

The right leg was placed in a transverse manner, and the foot curved inwards; but by traction it could be drawn into its proper position. The left leg was raised up by the side of the body, and could not be drawn down, being pushed out of its proper direction by a soft tumour which was found to arise from the sac of a spina bifida. This gave the child the ridiculous appearance of a clown painted in a theatrical representation, with the legs separated to an almost impossible extent. The foot of the left leg was also curved like the other.

As it is difficult by any description to represent the position accurately, without fatiguing the patience of the reader, he is referred to the lithograph, from an excellent drawing executed by Mr. Stephenson, and which shows the appearance of the foetus *in utero*. The curious *packing* of this distorted figure is worthy of remark.



It may again be stated that the right leg was, at first, in immediate apposition with the uterine walls, and was concealed by the hernial tumour, which, on account of its softness, was more readily acted upon by the pains of labour. On examination, the ossa pubium were found deficient, and the spinous and transverse processes of the vertebræ of the lower part of the spine, together with the posterior walls of the sacrum, were also wanting. The genital organs were imperfect. The penis, which was extremely minute, was imperforate; but a small aperture below communicated with the bladder. The mother continued well for some days; she then complained of headach, and mentioned having an offensive lochial discharge. The use of warm water injections, and attention to the bowels, soon, however, recruited her health; and she speedily resumed her domestic duties. This case seems to the writer to possess considerable interest, on account of the presentation of a soft tumour, the nature of which could not, in the first instance, be understood.

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*Case of Hernia of the Lung, caused by the Handle of a Wheelbarrow penetrating the Side of the Chest.* Reported by G. A. K. LAKE, M.D., House Surgeon to the Royal South Hants Infirmary.

JAMES TAYLOR, aged 32, a labourer employed on the new docks, rather a small, thin man for such an occupation, but with a well-made chest, has lived temperately, enjoyed good health, and is married; on July 29, 1851, he was wheeling a barrow along a narrow plank, when it slipped, dragging him after it; he fell down about five feet, and pitched on the wheelbarrow-handle, which was in a perpendicular position. The handle entered his side, but slipped out again. He was admitted into the Royal South Hants Infirmary, under the care of Dr. J. Bullar, at five o'clock, P. M., about half-an-hour after the accident, when, on examination, a wound ten inches in length was found about three inches below, and to the outer side of the left nipple; protruding through it, and also through a hole in his waistcoat, was a portion of lung as large as a man's fist, which expanded and contracted very considerably with each act of respiration. The lung was very healthy in appearance, and there did not seem to be any wound of the pulmonary pleura. One rib was at the time thought to be fractured, but the state of the patient prevented any very accurate examination; and it is difficult to believe that so large a body as the handle of a wheelbarrow could have entered his chest without fracturing the rib.

He experienced great difficulty of breathing; the expression of his countenance was anxious; and there was much collapse; pulse 60. The lung was immediately replaced; and in the act of so doing, a very small quantity of air escaped into the pleura. The wound was brought together with stitches and strapping; and the whole of that side of the chest was confined by straps of adhesive plaster, passing half-way round. He was placed on his wounded side; but,

appearing quite unable to breathe in that position, was changed, so as to be on the sound side. The apex of the heart could be felt beating, within half-an-inch of the anterior angle of the wound. There was no hemorrhage.

Seven, P. M.—Feels much pain, particularly in the left shoulder; pulse 80, respiration 36. He was ordered half a grain of muriate of morphia.

July 30.—Has passed a good night; feels very little pain; prefers lying on the sound side; the plaster prevents all movement of the diseased side; pulse 102, respiration 32; farinaceous diet, and the morphia to be repeated at bed-time.

31st.—He is quite easy; pain in the shoulder almost gone; no appearance of discharge at the wound; skin moist; urine plentiful; bowels not opened since the accident; pulse 102, respiration 29; he was directed to take five grains of compound rhubarb pill, with half a grain of muriate of morphia, at bed-time.

August 1st.—The side is quite easy, but he complains of a feeling of fulness; bowels have not acted; pulse 104, respiration 25; the medicine was ordered to be repeated.

2nd.—Still complains of the feeling of fulness; bowels have not acted; no visible discharge yet at the wound; pulse 102, respiration 18; he was ordered to take two pills, containing seven grains of compound colocynth pill, two grains of extract of hyoscyamus, and one drop of oil of peppermint. Evening.—Bowels not yet acted on; a mild injection was administered, which produced the desired effect.

3rd.—He complains of a little pain in the side, particularly on breathing deeply; pulse 94, respiration 25; a slight friction sound, and some bronchial respiration to be heard near the wounded part. Evening.—Acute, lancinating pain in the side; friction sound very distinct; pulse 98, respiration 37; wound dressed; slight, superficial sloughing; very little discharge; he was directed to take a pill containing two grains of calomel, and half a grain of opium every second hour.

4th.—Much better; pain nearly gone; slept tolerably; pulse 96, respiration 26; half a pill to be taken every fourth hour. Evening.—Pain quite gone; omit the pills.

8th.—Continues doing well; there is a slight discharge at the wound; the superficial slough is separating; pulse 95, respiration 25; he was ordered to take two drachms of castor oil.

13th.—Feels quite comfortable; slight tubular breathing can still be heard; no expectoration; pulse 85, respiration 25.

15th.—Does not feel so well; there is more discharge at the wound; still cannot lie on the wounded side; complains of lancinating pains as before in the side; friction sound distinct; pills as on the 3rd were repeated.

16th.—Better; pulse 84, respiration 20; to take the pill every fourth hour. Evening.—Omit the pills.

18th.—He feels very comfortable; there is a small circumscribed



abscess in the parietes of the chest, which discharges healthy pus; pulse 80, respiration 20; it is dressed twice a day with water dressing.

September 1st.—Abscess nearly well; there is some superficial redness over the rib, about an inch external to the wound; on passing a probe, a sinus is found running into it; no bone can be felt.

23rd.—Since the last report he has continued improving; the sinus is healed up; there is no redness or tenderness; and he is in good condition; he does not expand the left side as fully as the right, but it is resonant all over, and vesicular breathing can be heard at the site of the cicatrix; he was discharged.

The above case would seem to show that, however correct it may be as a general rule, to place patients with penetrating wounds of the chest upon the wounded side, yet, that cases may arise in which that practice cannot be adopted, and that bad consequences do not necessarily follow therefrom. In the present instance, the straps of plaster, and the instinctive efforts of the patient, seemed to keep the wounded side, though uppermost, pretty quiet. His complete recovery from so formidable an accident seems to be due to his previously temperate habits and good state of health, the uninjured state of his lung and its speedy reduction; the rest given to the injured part by surrounding the chest, not with mere bandages, but with broad slips of adhesive plaster, which permanently keep their place, and which in this Infirmary are found to be eminently serviceable in treating injuries of the ribs; and combating the earliest symptoms of pleuritic inflammation by calomel and opium, persevered in only as long as the symptoms demanded, and repeated when necessary. With the exception of the two slight inflammatory exacerbations, he may be said to have recovered with scarcely more inflammation than was necessary to effect a cure. It was one of those singular cases, of which not a few are on record, where blunt instruments of a large size, such as the pole of a carriage, &c., have been forcibly thrust into the chest without destroying life; and it is therefore not unimportant that it should be placed on record.

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*Case of Scarlatina, with remarkable Recovery.* By THOMAS FITZPATRICK, M. D., Secretary to the Association of the Members of the King and Queen's College of Physicians.

Mrs. C. brought to my house her infant son, aged about six months, on Wednesday, 5th of November, 1850. She stated that he had been perfectly well from birth until the previous day, when he refused food which she had been in the habit of giving him once in the twenty-four hours. The child became remarkably dull and hot towards evening, and lay in a heavy doze. She gave him some castor oil and a warm bath. On examination, I found him lying in a semicomatose state, but capable of being roused; the face was pale, the pupils contracted, the respiration remarkably hurried, without any evidence of disease of the lungs. The bowels were free, and there had

been no vomiting, but the skin was hot, and the pulse very rapid. I directed a leech to be applied to the hand, and ordered one of the following powders to be given to him every fourth hour:—Calomel, three grains; James' powder, a grain and a half; and white sugar, half a drachm; to be divided into six parts. I told the mother that I considered the child was labouring under scarlatina, that convulsions were to be apprehended, and in case they occurred, I advised that the lower extremities and abdomen should be rolled in flannel wrung dry out of hot water, while at the same time the head should be sponged with vinegar and water barely tepid.

I was sent for to see this child the following morning at five o'clock, A.M., as convulsions had come on a short time previously, when the treatment I recommended had been adopted. The patient lay in a complete state of stupor, with the eyes turned upwards, the pupils contracted and insensible to light. The pulse was remarkably quick, and the respiration laboured. The bowels had not been acted on. I directed a purgative enema to be given, the powders to be continued, and in the intermediate hours a teaspoonful of an aperient mixture, consisting of manna, magnesia, rhubarb wine, and carraway water. Although no tooth could be felt advancing, I lanced the gums, principally with the object of detracting blood, having given directions that it should be occasionally wiped away from the bleeding surface and the quantity noted. Ten o'clock, A.M.—The child continues in the same state of stupor; the convulsive action is confined to the right side of the body. A mustard sinapism was applied to the epigastrium. Eight o'clock, P.M.—The stupor is not so marked, nor are the convulsions so frequent; the bowels were twice acted on. I prescribed one of the following powders, to be taken every sixth hour, until the bowels were moved: Mercury with chalk, six grains; rhubarb, ten grains; compound chalk powder, three grains; to be divided into three parts.

8th.—A favourable change occurred about five o'clock this morning; the child took the breast, and now looks about with a placid countenance; pulse 120; a rash is indistinctly observed on the body; towards evening it became more marked, and of a dusky red colour; the bowels were twice acted on during the day; the countenance had become paler, and the extremities were cold. I ordered heat to be kept applied to the legs, and directed a portion of a mixture of chlorinated soda and infusion of cinchona to be given every four hours.

9th.—Marked improvement in every respect, eruption of scarlatina well developed, and of a good colour. A slight redness is observed on the internal fauces, but no glandular enlargement exists. From this period the child went on well, and the disease pursued its usual course without any untoward symptom. On the 13th, I ordered some aperient powders, and gave strict charge that the child should be kept from exposure to cold, and advised that at the expiration of two days he should have a warm bath.

I was again sent for on the 18th. The child was observed to



have been restless on the previous day, became dull towards evening, and passed a bad night. I found him in a semi-comatose state, with a sluggish eye and contracted pupil; eyelids puffed; the face pale, tumid and waxy; no marks of œdema in any other situation; pulse 120; respiration slightly increased in frequency. The bowels were free. I directed a grain of mercury with chalk to be given every fourth hour.

19th.—Nearly in the same state as yesterday, but coma is more marked. Dr. Corrigan met me now in consultation. A blister was directed to be applied to the vertex, and the mercurial powders to be continued in larger doses.

20th.—He vomited frequently during the night; the bowels were once acted on; the secretion of urine is scanty, and, owing to the child's extreme youth, none of it could be collected for examination. Half a grain of calomel was ordered to be given every four hours, and a purgative injection to be administered in the evening.

23rd.—The patient lies in the same condition as last reported; he is comatose, but can be so far roused as to take the breast. Convulsions came on last evening; he had two attacks during the night. On the occasion of my visit, a third occurred. The face became gradually flushed, the head being constantly rotated from side to side, while rapid twitchings of the eyelids were observed; the eyes were turned upwards, and to the right side, and became fixed, the pupils being dilated to the fullest extent. No movement of the extremities occurred: nor was there flexion of the thumb on the palm of the hand. This state continued for about two minutes, and was followed by profound coma.

December 1st.—During the preceding week the child continued in the same state as described in last report. The attacks of convulsion varied in number, the average being eight in the day; occasionally they were ushered in by a scream. Stupor is still profound, and the head is permanently retracted. The child, when placed at the breast, has been generally able to suck.

The treatment since last report has been confined to occasional sponging of the head with vinegar and water, the use of laxatives and enemata, also of counter-irritation to the lower extremities by sinapisms. The convulsions were more severe in character and frequency during last night; for the last twenty-four hours the secretion of urine has been remarkably diminished. I directed a blister to be applied across the loins, an enema to be given, and a tepid douche applied to the head twice in the day.

2nd.—Had a quiet night, only one convulsion; a second occurred at the period of my visit; he passed a large quantity of urine since the application of the blister. A calomel powder was ordered to be given, and a purgative enema in four hours after; the douche to be continued to the head.

8th.—No marked change since last report. The attacks of convulsions varied on different days; the pulse ranged from 110 to 140. The mother, regarding the case as hopeless, seemed averse to medical

treatment, which was, therefore, confined to laxatives and enemata when the bowels became torpid, and to the use of the douche once a day. No convulsion occurred last night; the application of a blister along the spine was now determined on.

9th.—The convulsions have not returned; other symptoms as yesterday; to-day I accidentally observed a remarkable circumstance. The child lay in a comatose state, with the eyelids closed. I raised them up, and happening to press with the other hand on the anterior fontanelle (which was remarkably open), the eyes became, during the pressure, turned upwards, and to the right side, the pupils becoming in some degree dilated. On removing the finger from the fontanelle, the eyes returned to their natural axis; a second experiment exhibited the same phenomena.

10th.—Continues free from the convulsions; bowels regular, passes urine less frequently, but in larger quantity; he appears rather more conscious, and whined this morning while being washed. I directed a teaspoonful of the following mixture to be taken three times daily:—Iodide of potassium, four grains; syrup, three drachms; compound spirit of juniper, a drachm; and water, twelve drachms.

From this period a gradual improvement took place; on the 8th of February, 1851, the report was as follows:—The child is fat and thriving, but the countenance is fatuous; the pupils are in a natural condition, but experiments demonstrate that the power of vision is lost; the sense of hearing appears perfect. The secretions are in a healthy state. The child exercises its limbs, and appears much pleased when hoisted. The treatment adopted was the use of the cold douche to the head every morning, and an occasional purgative.

May 3rd.—Child cut two teeth, and passed through whooping-cough, without any bad consequences, since last report was made. His condition is much the same as before described; blindness still continues; the left eyelid droops a little, and the head looks large. The horizontal occipito-frontal measurement over the ears is nineteen and a quarter inches; general health perfectly good; he goes out every day in a little carriage; seems to enjoy exercise, and cries on being brought back into the house.

July 23rd.—Marked improvement in every respect; he evidently now possesses some power of vision, and takes notice of objects. The mother states, that the first day she observed positive evidence of his sight being restored was on the 14th instant. Sea-bathing has been used every day for the last month, as well as a cold shower-bath to the head each morning.

December 20th.—Continues perfectly well; vision is now perfect; but when an attractive object is presented the eyes are rolled about for an instant in an irregular manner before the child fixes them on, and attempts to take hold of it. He is beginning to speak and walk. The countenance displays more intelligence; he now discriminates persons; the exercise of these powers has, however, been observed only within the last month.



*Report on the "Tissu Cellulaire Artificiel" of Melsens.* BY ROBERT D. LYONS, M.B. T.C.D., M.R.I.A., &c.

THE results of chemical investigation have made us familiar with the elementary composition of almost all the organised products which constitute the structure of animals and plants, and even in those instances in which our knowledge in this department has not yet reached the limits of scientific accuracy and precision, we may confidently anticipate that the labours of the numerous inquirers who are now actively engaged in prosecuting researches in organic chemistry, will, at no very distant period, fill many of the more important *lacunæ* which may still be pointed out. On the other hand, histological inquiry has revealed to us the intimate structure and minute organisation of every tissue, and with the aid of the microscope we can now, with perfect facility, study the ultimate form of every constituent element of the vegetable or animal, which possesses distinct morphic properties. What is still to be desired on this side of the general inquiry into the nature of organic bodies may be hopefully looked forward to; its accomplishment will, no doubt, before long reward the industry of the present generation of zealous and intelligent micrologists. But while chemistry thus informs us of the composition of organic bodies, and their structure is revealed to us by the microscope, we have yet much to learn with regard to the particular operations by which definite forms are assumed by the elementary tissues. Here, indeed, exists a broad and deep *lacuna*, which separates the results of the chemist and the micrologist. It is true, that bold speculations have attempted to bridge this chasm; yet, notwithstanding what we owe to the splendid generalizations of Schleiden and Schwann, no portion of organic science is more incomplete, or presents so many undetermined problems.

Many considerations concur to establish the probability of the proposition, that the fluid state is necessarily the first in which the elements of a tissue must exist previously to their undergoing a morphic determination, precipitation, histomorphosis, or whatever other analogous term may be assumed to denominate the simplest change which may be supposed to occur in the passage of a perfectly amorphous fluid into a tissue of definite shape. The chemical properties of the fluid are familiar to us; so likewise are the forms which it assumes as a distinct tissue; but what those laws are, in obedience to which the latter condition results from the former, constitute, I think, one of the most obscure, and at the same time intensely interesting questions which can be found in the whole domain of organic science. What are the forces brought into play to determine not only the formation of a tissue in an amorphous fluid, but also to give it peculiar and characteristic properties? These are questions which spring up at every moment when we venture to contemplate the very interesting but mysterious phenomenon of *histogenesis*, a general term which may be used to designate the subject under consideration.

Under the head of histogenesis many of the most obscure and difficult problems are included. Thus, for instance, we may inquire: what it is that determines the transudation of a blastema? what, the particular nature of this fluid, which cannot, in all probability, be identical in any two normal tissues, not to speak of those of pathological origin? And this latter question, it may be remarked in passing, bears a very great analogy to that which demands a solution of the obscure physiological problem, why the liver secretes bile, the kidney urine, &c. &c.

While science has still to deplore the extremely imperfect and unsatisfactory condition of this portion of its domain, we are yet not altogether without indications as to the direction in which research may be prosecuted. And in more than one instance it is consoling to know that an *empirical law* has been ascertained, which, as is familiar to observers, is only second in value to the true scientific law, whose discovery it has so often preceded in other branches of science. Thus we owe to Ascherson a knowledge of the interesting fact that the contact of two homogeneous fluids, oil and albumen, results invariably in the immediate production of morphic elements. And more recently still, the observations and experiments of M. Melsens have established the possibility of one of these fluids undergoing distinct and very remarkable histomorphosis. The experiments of this observer must be looked upon rather as a highly interesting exegetical study,—furnishing a valuable amount of inferential and collateral evidence, capable, to a certain extent, of application to the explanation of the changes which occur within the system,—than as a direct contribution to our knowledge of these operations.

On former occasions the readers of this Journal have been furnished with the views of the most distinguished modern physiological pathologists, as to the relative importance of the part played by albumen and fibrine in the formation of tissues. The former has so much interest in its relation to histogenesis that every thing concerning its chemical history cannot but be received with consideration, and I shall make no apology for introducing some lengthened extracts from M. Melsens' valuable and highly original memoir. As will be seen, the results of this inquirer bear more especially on the action of purely physical causes on albumen, in combination with various salts by which it is not precipitated.

“We know,” says M. Melsens, “that many feeble acids do not precipitate albumen from its solution; my experiments have reference especially to the trihydrated phosphoric and acetic acids; this ceases to be the case when albumen is present with those salts which have no apparent chemical action on it, the re-actions change, for acetic acid, as well as the phosphoric, with their equivalents of base, and some acid phosphates as well, precipitate it more or less completely. I know of only a single case in which albumen is precipitable by acetic acid, namely, when it is acidified by sulphuric acid in the soluble compound designated by Berzelius, sulphate of albumen. As for the



action of acetic acid on pure albumen, obtained by the process of M. Wurtz, it is entirely different, as we shall see further on.

“The following is the process by which I prepare the salified solution of albumen: The white of an egg is mixed with its volume of water, and filtered; this constitutes the *normal solution of albumen*, with a specific gravity of about 1020. The filtered liquid is saturated with salts, which are added in excess, after which the fluid is filtered again, to separate the excess of salts; the fluid resulting from this second filtration may be denominated the *normal saturated albumen*. The normal albumen saturated with chloride of sodium has a specific gravity of about 1200.

“My experiments have been made with almost all the salts which are without an apparent action on albumen, as well as with those which begin to precipitate it, but whose precipitations are soluble either in an excess of albumen or of the salt; for some salts of baryta, of lime, of magnesia, and of ammonia, &c., the albumen must be left in excess, for in saturating it with these salts it is precipitated, if they are added in excess; when we wish to examine the re-actions in this case, it is necessary to add, little by little, the solution of normal albumen, until we obtain the resolution of the precipitate first formed. I will not pronounce on the nature of the precipitates obtained; but it will appear evident that we must, in the generality of cases, admit that the albumen is precipitated in consequence of a particular physical disposition of the liquid; that if at times the precipitation does not occur immediately, in dilute liquor for example, agitation may cause a troubled condition of the fluid, as occurs in precipitation, crystallization, solidification of water, of sulphate of soda, of phosphorus, &c. \* \* \* Tribasic phosphoric acid precipitates normal albumen saturated with salts; certain salts, amongst which are borax, phosphate of soda, acetate of soda, acetate of potash, form an exception to this rule; however, if the fluid be agitated with a glass rod, a troubled condition is slowly produced by the mechanical action. The solutions of albumen with other salts are all precipitated by phosphoric acid; these precipitates are soluble in an excess of the acid. The presence of the salts, therefore, permits us to make with albumen and the trihydrated phosphoric acid an experiment which requires, with normal albumen, the monohydrated phosphoric acid which precipitates it, and the trihydrated, which dissolves the precipitate formed.”

These examples will be sufficient to show the nature of the results which have been arrived at by M. Melsens; similar experiments were made with a variety of other substances, such as corrosive sublimate, ether, alcohol, creasote, &c., but it is unnecessary to follow out their details. I shall, therefore, pass to the consideration of a series of experiments which to many will appear still more conclusive, as to the action of physical causes on albumen.

“If,” says M. Melsens, “after the experiments which precede, I am induced to believe that the particular physical constitution of the liquids plays some part in the precipitation of albumen, those

which follow cannot leave the least doubt as to the action of agitation.

“Some very dilute liquids remain limpid until beaten with a glass rod, when they become troubled, and immediately parcels of fibres may be seen to form under the influence of agitation; under the microscope these appear, as very distinctly organised fibrous forms, which, by juxta-position and felting together, constitute actual membranes. We have thus a phenomenon conformable to the production of mineral precipitates by the influence of agitation.”

I shall only briefly notice some of the remaining experiments. A current of air was passed through a solution of normal salified albumen, sufficiently dilute not to allow of the froth passing out of the vessel; this froth was seen to be transformed into a solid body, insoluble in ammonia, potash, water, or dilute acids. To obviate two objections which might be started to this experiment, air saturated with the vapour of water, and hydrogen purified by caustic potash and saturated with vapour, were successively employed. Lastly, to avoid all sources of error, a solution of albumen diluted with water was agitated *in vacuo*, by converting the vessel into a sort of water hammer, after expelling the air by heat and an air pump, the orifice being subsequently hermetically sealed. The solution, perfectly limpid at first, became troubled after a few shakes, and a membrane was rapidly formed.

The solid body thus formed from a limpid solution of albumen by the simple effect of agitation, was subjected to microscopic examination by M. Gluge, from whose report I shall make a few extracts:

“The albumen of the white of egg, solidified by mechanical actions, resembles false membranes, and even serous. It is presented to our view under the form of membranes covered with granulations of from  $\frac{1}{2}$  to 1 millimetre in diameter, white, semi-transparent, about  $\frac{1}{4}$  or  $\frac{1}{2}$  millimetre thick, and sufficiently elastic. With a magnifying power of 300 we can distinguish an amorphous substance finely punctated, in which are found fibres, sometimes isolated, sometimes united in bundles, like the fibres of cellular tissue, more often easily isolated and elastic. Their diameter varies from  $\frac{1}{800}$  to  $\frac{1}{400}$  of a millimetre: more rarely there may be seen large and transparent fibres, analogous to those which are met with in fibrine. In the middle of these fibrous bundles may be observed granulations composed of little globules of  $\frac{1}{400}$  to  $\frac{1}{800}$  of a millimetre in size, and enclosing some bubbles of air. These globules are sometimes very regularly grouped, and then form rounded masses. The fibrous aspect of the solidified albumen differs from that which albumen possesses when transformed into pellicles, thin, opaque, and much less elastic, such as are obtained by the process of Ascherson. These last present folds, and not fibres fully developed like the former: they appear rather to be formed of very small granules.”

I have introduced these lengthened extracts from M. Melsens' memoir from a conviction of the great interest attaching to the sub-



ject, and from the light which his experiments throw on the very obscure subject of histogenesis, it is to be hoped that they will be further followed out<sup>a</sup>. The primary stages of the formation of the embryonal tissues require a very accurate investigation, and we possess as yet but little data to form an opinion as to their primary mode of origin. In his paper on the structure of the uterus, Kilian observes, that the coagulable blastema of the embryonal tissues, especially of muscles, possesses the property of contracting, through attenuation and desiccation, while, at the same time, in the fluid portion of the preparation, delicate, round, or angular discs, like thin flakes of fibrine, begin to appear. They sometimes enclose a nucleus, and though pale and delicate at first, like young cells, become subsequently like horny epithelial scales, being no longer soluble in acetic acid, which only renders them paler<sup>b</sup>. It is much to be regretted that the records of physiological research during the past few years afford but very scanty materials for determining with certainty any of the laws which preside over the primary formations of tissue.

I had recently an opportunity of inspecting a very beautiful and large specimen of albumen solidified by the process of agitation, in the possession of M. Melsens. To the naked eye it presented the appearance of a membrane of a whitish colour, formed by the interlacement of parcels of fibres, which enclosed spaces of an irregular shape; it was tolerably tough, dense, and resistant.

M. Melsens was so kind as to present me with a small portion of the preparation, which I submitted to a most careful microscopic examination on my return to Dublin, and I had thus the satisfaction of verifying, in the most complete manner, the results of M. Gluge's investigations. As my examination was conducted with powers higher than those employed by this eminent micrologist, and as consequently some of the more minute details were better shown, perhaps I may be allowed to append a brief statement of the appearances seen in my examinations. Though the specimen has been preserved now for several months in spirits of wine, I do not find that it has thereby lost any of the characters detailed in M. Gluge's report.

A fragment of the solidified albumen, teased out with needles, placed on a glass slide, and covered with a thin slip in the usual way, was placed in the field of a very fine Ross in my possession; the glasses employed were the  $\frac{1}{8}$ -inch objective, and the eye-piece A, registered by Ross as giving, in combination, a magnifying power of 420 linear, which is, I think, certainly somewhat over the actual

<sup>a</sup> In the last Number of a British contemporary Journal an exceedingly brief extract is made from the Memoir, to which a short editorial statement is appended. I doubt if the writer had seen the original, as it is impossible to understand how, if he had perused M. Melsens' account of his exceedingly careful experiments, he could be induced to make such remarks as to sources of error or deception arising from the presence of fragments of the albumen membranes, or the chalazæ. The double process of filtration employed completely prevents such an error.

<sup>b</sup> See Canstatt's Jahresbericht, Bd. i. p. 24. 1850.

magnifying power; and indeed I may observe, in passing, that repeated measurements with the stage and ocular micrometers (Robin's method<sup>a</sup>) have satisfied me that the registered magnifying power of all glasses, both English and foreign, is considerably overstated by the makers, from the want of a perfectly true method of estimating the magnifying power, which is still a great desideratum in micrology.

The specimen examined with the glasses above named presented four distinct kinds of elements. Firstly, a granular base; secondly, fibres, which were flat, round, straight, curled, isolated, or interlaced in various ways; thirdly, spherical bodies of different sizes; and lastly, flat, scale-like particles, these being the least numerous constituents.

The granular base constituted a very considerable proportion of the entire specimen, but did not appear to be uniformly disposed throughout it, as in some portions it formed nearly the entire, while in others it was almost altogether replaced by fibres.

The solidifying force would thus appear not to have acted with uniformity. To determine what modifications of it produced granular matter,—what fibres,—what again caused the formation of the little spherical bodies,—are questions, perhaps, of too delicate a nature to admit of ready solution. Could we arrive even at an approximate explanation, a great step would be achieved in the history of the obscure process of histogenesis.

The fibres constituted a very large element; the majority of them presented an extremely clear, decided, and *clean* outline. Many of them lay parallel to each other, and, as far as they could be traced, formed straight lines. Others, again, terminated in rapid curves; in one little parcel, which was very well shown, and which I had thus an opportunity of observing very attentively, they curled and interlaced with each other in a very graceful manner. In their general disposition, as well as in size and shape, they bear a very close resemblance to the fibres of the yellow elastic tissue, for which I make no doubt they would have been readily mistaken by any one casually looking at them through the microscope. Some masses of the fibres lay isolated; others were to be seen taking an origin in the granular base, where their commencement could not be well defined; others, again, lay in contact with the scale-like bodies, to be presently noticed. To me, however, the most interesting of all the structure observable in this preparation, are the spherical bodies. With the exception of the scales, they were the least numerous. I observed them in two situations, in most abundance on a square-shaped mass of the granular base, and in another portion in contact with fibres. The smallest bodies of a spherical shape, but not those to which I shall more particularly refer, were about the size of the well-known oleo-albuminous granules, and closely resembled them in their reflec-

<sup>a</sup> For an account of which see "a Retrospect of the Progress of Microscopic Investigation," in the Number of this Journal for August, 1850.



tive properties. The *spherical bodies* were nearly uniform in size, grouped quite close to each other, and presented all nearly similar characters. They showed a dark border, their interior varied with the amount of light transmitted, but under all conditions of light, both as to intensity and obliquity, they presented a sort of nucleus, which in all was of a long, elliptical shape, though the bodies themselves appeared as nearly as possible spherical. This nucleus was in length equal to about one-half the diameter of the sphere, and in breadth about one-eighth. What was the nature of these bodies? They were certainly not either spheres of oil or bubbles of air; there was not the slightest probability of the former substance being present; air bubbles they also could not be; the specimen had been at rest in spirit for a very considerable time, while as more positive evidence of their nature, I would adduce the peculiar nucleus, which in all was oblong, and did not disappear under any conditions of light. May we then regard them as nucleolated nuclei, or small nucleated cells? I confess that I can see no objection to this view; it is only to be regretted that it in no way throws light on the relation of the containing body to the contained, as to priority of origin, or necessary connexion of the one to the other. It is extremely interesting, however, to learn that albumen is of itself capable of undergoing a celluloid development. The last objects I shall notice, as observed in the preparation, are the scale-like bodies. There was only one situation in which I clearly recognised a group of them, though others existed scattered here and there. The group of scales was in close proximity to a parcel of fibres, and lay partly on a mass of the granular base. They appeared under the form of delicate laminæ, somewhat of a quadrangular figure, their borders irregular and serrated, and some few presented an imperfect nucleus; granules were likewise to be found on the surface of two or three. Were these of the nature of cells? This is a question which I cannot decide; it is possible they may be merely the result of a process of *flaking*, or of the fusion of granules precipitated together in small masses.

I have dwelt thus at length on the microscopic appearances of this highly interesting artificial preparation, because it seems to me that the importance of the subject cannot be exaggerated. It gives us indications of paths of investigation to be followed; and I will freely confess that the perusal of M. Melsens' memoir and the results of my examination of the specimen which he so very kindly placed at my disposal, have filled me with the highest hopes of seeing before long some large advances made in this hitherto almost unworked field of investigation. Recent chemical researches into the physiological history of organic bodies have done much to establish the paramount importance of albumen; and with the evidence now furnished us of its capability of undergoing histomorphosis into at least three distinct structural elements, I conceive that a most powerful stimulus has been given to experimental results into the foundation of the organic compounds, while we owe to M. Melsens

clear indications of the road to be followed. I feel that I owe some apology for dealing at such length with a subject already ably handled by so eminent a micrologist as M. Gluge. I will trust, however, to his kind indulgence to pardon the extent of my observations, which have solely for their aim to bring more prominently into relief what appeared to me the most interesting points of these admirable experiments. I may further add, that during a recent visit to Brussels I had an opportunity of examining a very beautiful specimen of fibrine, prepared by M. Melsens by the process of continued washing; and I can entirely corroborate his statements as to its striking white colour, when perfectly freed from fragments of blood-globules, and all traces of hematosine.

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*On the Differential Diagnosis of Inflammation of the Pancreas.* By  
Dr. FRANC LUSSANNA.

IN a very careful history of a case of this disease, occurring in a countryman, a patient in the hospital, of spare habit of body and bilious temperament, an extraordinary flow of an excretion resembling saliva was observed, similar to what takes place in individuals under the influence of mercury. This secretion was viscid, puriform, and presented bloody streaks of a brick-red colour, and yet the most careful examination of the cavity of the mouth failed to show any abnormal condition of the parts contained in it; nor was any alteration to be discovered externally in the form, size, or consistence of the salivary glands. The sense of taste was not interfered with, the temperature of the body was generally and remarkably lowered, the pulse was small, slow, and laboured; the expression of countenance indicative of abdominal distress; the patient had frequent inodorous, insipid eructations, which he encouraged in order to relieve a pain and sensation of weight in the epigastric and hypochondriac regions; this pain was not increased by pressure; the bowels were confined, a sense of oppression, tightness, and suffocation were complained of for some hours after taking food,—during digestion. The author, bearing in mind the experiments of Bernard on the uses of the pancreatic juice in digestion, examined the alvine evacuations, and discovered in them several whitish-yellow particles resembling fat or congealed oil; these particles were always found floating, they left a greasy stain on paper, and evidently corresponded to the butter or the fat of broth and meat which had been swallowed; this continued for about three weeks, the fatty particles being more abundant after the use of purgatives; the other alimentary substances swallowed were also recognisable. The treatment consisted in blood-letting, active purgatives, and the administration of tartar emetic. After this period the pain gave place to a feeling of tension, as if a bandage were tightly pressing the abdominal parietes, between the xiphoid cartilage and the umbilicus, towards the back, and in this region a deep-seated nodulated



tumefaction was perceptible to the touch. Leeches, frictions with iodine, extract of hemlock, soap, and bitter deobstruent decoctions were now employed, followed after a time by mercurial inunctions and salt-water baths. The disease lasted three months; after this the fatty matters were no longer to be found in the fæces, the sensation of weight, producing laboured breathing and a feeling of suffocation, had disappeared; the deep-seated supra-umbilical tumefaction had decreased, the appetite was restored, but the viscid and dense ptyalism (the excretion being, however, less tinged with blood), the coolness of the skin, the depression of the circulation, the emaciation and the wasted appearance of the face continued for a time, but in their turn gradually vanished. This case, then, as well as two others seen by Bernard, would go to prove that the most prominent and characteristic symptom of pancreatitis is the fatty or oleaginous nature of the evacuations. Dr. Lussanna endeavours to show that the observation by Dr. Verga<sup>a</sup> of the fatty degeneration of a pancreas, with a simultaneous tendency to a similar degeneration in the other abdominal viscera, is not inconsistent with these facts. He points out that probably the mode of living, age, climate, particular kind of food, &c., may remedy the evils arising from a suspended or deranged state of the pancreatic functions, as we know occurs with other functions, and supports his views by referring to the results obtained from comparative physiology and animal chemistry, and by putting forward the law established by Liebig, that starch, sugar, and all the various principles of ternary composition habitually entering in great proportion into the food of exclusively herbivorous animals, may be transmuted into fatty matters by losing, under the vital influence, a part of their oxygen.—*Giorn. Veneto di Sc. Med.* p. 766, T. II.—*Bulletino delle Scienze Mediche Bologna*, August and September, 1851, p. 182.

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*Case of Hydrophobia, treated with Atropia, in the Greater Hospital of Brescia.* By Dr. FRAN. RICHIEDEI.

GIACINTO BOCCOLO, ten years of age, of sanguine temperament and robust constitution, was bitten in the upper lip by a rabid dog; the wound was cauterized in three hours after the accident, and quickly healed by the first intention. Twenty-six days after, he was admitted into hospital, labouring under the following symptoms:—extreme dejection; some flushing of the face; rapid and constant motion of the eyes; a sense of constriction in the throat, in consequence of which he declared that he was unable to swallow; tongue rather whitish; breathing slightly laboured; pulse almost normal. He was hungry, and with difficulty swallowed some spoonfuls of panada, but refused to drink. When presented with some water, contained in an earthen vessel, he became violently excited, apparently enraged, throwing his eyes about in terror, and raising himself in the bed as

<sup>a</sup> Gazz. fed. Lomb., No. 18, 14th July, 1851.

if about to vomit; there was, however, neither foam nor pustules under the tongue. He was ordered a grain of atropia, dissolved in spirits of wine, and made with crumb of bread into twenty pills; of these he was to take one, at first every three hours; and afterwards at shorter intervals. Intolerance of light soon supervened, and during the first day he passed neither urine nor fæces; the day after, his pulse was more frequent, and as he refused to take his medicines, frictions were directed at each side of the neck with the following ointment, and a blister to the epigastrium, to be dressed with the same: pure atropia, two grains; hog's lard, half an ounce,—to be used in two days; a purgative enema was administered. At the end of six hours his dejection and the intolerance of light and air were increased; at the end of a second similar period he was much worse; he gave no sign of feeling; no longer answered when spoken to; his countenance was wildly distorted; he rolled his eyes incessantly about, twisted his lips, frequently appeared to weep, slavered with his mouth, but was less sensitive to light and air. Two inunctions had been performed; recourse was now had to a third, and the blister was dressed. In the morning of the day following he was delirious; he had convulsions; his eyes were suffused and glassy; his respiration difficult; his pulse was very small and extremely rapid. A strong dilatation of the pupil was the only phenomenon referrible to the atropia; inunction was again employed, the blister was dressed, but death soon closed the scene; shortly before he expired the wound had partly re-opened. In this instance, however, remarks the author, the violent convulsions, the furious delirium, the loud and dreadful screams, recorded in almost all accounts of cases of hydrophobia, did not occur. Might not this, he asks, be in consequence of the beneficial effects of the atropia?—*Gazz. Med. Lomb.*, 1851.—*Bulletino delle Scienze Mediche di Bologna*, August and September, 1851, p. 179.

[We have thought this case worth recording as an illustration of the failure of a preparation not before tried, that we are aware, in the treatment of a malady which has as yet resisted all the resources of medicine. Richter and Bayle have quoted authorities in favour of the efficacy of belladonna in this disease, but we are disposed to agree with Pereira, that their statements are not to be depended on. The case is also interesting in reference to the shortness of the period of latency.]

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*Case of Infra-Maxillary Excision of the Tongue.* Reported by Dr. GIUSEPPE GIAMMATTEI.

MARIA DOMENICA RANIERI, aged fifty-five, a married woman, of naturally sound constitution, and mother of several children, was admitted into the hospital of Lucca, stating that, six years previously, she had perceived a tumour, about the size of a small pea, on the right border of the tongue, connected with the anterior pillar of the velum pendulum palati. This tumour was hard, and was quite indolent, on which account it had caused her but little anxiety. It



had, however, steadily, but slowly increased, until, at the time of her admission, it was more than an inch long, and at least half-an-inch in breadth. Some months before her application at the hospital it had ulcerated, and had, for about eight months, given considerable pain. This consisted first in a burning sensation, which afterwards changed to a feeling of pricking, occasionally giving rise to great annoyance, and extending from the tumour to the right ear.

On examination I was at once convinced that the tumour was cancerous: its hardness, irregularity, long continuance, and slow progress, the character of the pain complained of, the ulceration, and the appearance of the ulcerated tubercle, were sufficiently striking to remove all doubt as to the nature of the case. Obvious, however, as were the character of the tumour and the indications of treatment, it was far less easy to decide on the mode of extirpating the disease most likely to be free from the dangers attending its complete removal.

Avoiding a minute description of the trials I made to ascertain if it was possible to remove the entire tumour through the mouth, by which I convinced myself of the impracticability of this proceeding (on account of the rapid progress the disease had made, since the admission of the patient, towards the base of the tongue, while it had not at all advanced in the direction of the apex), as well as of the impossibility of remedying the bad effects of this operation, I may briefly state that it was, on consultation, determined to perform the excision in the supra-hyoidean region, it being considered that the method designed and carried out by Signor Cavaliere Giorgio Regnoli, the distinguished Professor of Clinical Surgery in the University of Pisa, was the only one capable of insuring the complete removal of the disease.

Having made the first three incisions, dissected off the edges, penetrated into the cavity of the mouth, and cut through the supra-hyoidean layer of muscles, I caught the tongue and brought it out on the anterior region of the neck; here, placed on the stretch, it was in its entire extent completely under control—in a word, I closely adhered to the plan proposed by Signor Regnoli<sup>a</sup>.

[Regnoli's operation is thus described by Chelius<sup>b</sup>:—

“Three cuts were made in the form of T, from the lower edge of the point of the chin to the tongue-bone, and on either side to the front edge of the *m. masseter*. The skin, cellular tissue, and *m. platysma myoides* were dissected off; a pointed, straight bistoury thrust behind the chin from above downwards, the insertions of the *m. geniohyoidei* and *genioglossi* were cut through, and the mucous membrane of the mouth divided. With a button-ended bistoury the insertions of the

<sup>a</sup> Vedi nuovo metodo per l'estirpazione della lingua immaginato ed eseguito dal prof. Giorgio Regnoli ed esposto dal Dott. Andrea Ranzi. Pisa, Pieraccini, 1838.

[See a new operation for the removal of the tongue, invented and performed by Professor Giorgio Regnoli, and described by Dr. Andrea Ranzi].

<sup>b</sup> A System of Surgery, by J. M. Chelius, &c., translated from the German by John F. South. London. 1847. Vol. ii. p. 779.

*m. digastrici* and *mylohyoidei*, and the mucous membrane of the mouth, were now cut through, up to the pillars of the soft palate. After tying a few vessels, the tip of the tongue was seized with Museux's forceps, and drawn down to the lower opening, so that the whole tongue was seen on the front of the neck, and pulled well down with the fingers. Several ligatures were now applied with a long curved needle around the root of the tongue; the tongue cut off with a small pair of shears in front of the ligature; its stump returned into the cavity of the mouth, and the wound closed. Ice was put into the mouth to keep down the inflammation."']

Having advanced so far, I included the cancerous tubercle in a semi-elliptical incision, which I made with a convex-edged knife [*coltello panciuto*] and removed it. In performing this incision, the lingual artery, as may be supposed, was cut, but I easily tied it by passing a thread with a fine needle through the tissue of the tongue round the artery, in such a manner as to include as little as possible of the surrounding parts. I then proceeded to remove a diseased portion of the pillar of the palate, which I accomplished by seizing the indurated pillar with the fingers of the left hand, and cutting off the hardened portion with a button-ended bistoury, introduced with the guidance of the fingers; then bringing the knife forward, I excised another indurated tissue which presented itself on the posterior part of the inferior alveolar arch. It was necessary to apply the actual cautery to the wound made in excising the affected portion of the pillar, in order to stop a hemorrhage, which, although slight, could not with safety be left unchecked. Having done this, and replaced the tongue in the cavity of the mouth, I proceeded to re-unite the edges, which I thought it most advisable to do by means of the interrupted suture, assisted by strips of adhesive plaster and bandages.

Unwilling to trouble the reader with unnecessary details, I shall merely state that re-union was rapid; that the cicatrix was regular, and, after a time, scarcely perceptible; that no untoward symptoms arose; that, on the second day after the operation, the patient was able to swallow some spoonfuls of broth; that, on the fourth, she began to depress the jaw, and to articulate some words; and, finally, that on the fourteenth she was quite recovered.

It is evident that I deviated from Signor Regnoli's operation only in the following points, viz.:—In tying the lingual artery after the excision of the tumour, instead of passing three ligatures round the entire portion of the tongue to be removed; in using a knife in preference to scissors, in the excision of the cancerous tumour; in refraining from cauterizing the super-hyoidean muscles which had been cut; and lastly, in employing sutures to unite the edges of the wound. I had reason to be gratified with the result of these slight modifications of the operation; since, while there was not the least threatening of secondary hemorrhage, although the divided muscles were not cauterized, I obtained immediate union with a regular and scarcely perceptible cicatrix, and, above all, because recovery was not so pro-



tracted as would have been the case, if I had renounced the advantages of immediate union.

The success which has attended the greater number of sub-maxillary extirpations of the tongue induced me to reflect on the reasons why this operation has not hitherto been better known in Europe, and I have been unable to trace this serious oversight to other causes than our own *esteromania*, a mistaken national pride, and the little interest taken by foreigners in anything done in Italy. May my feeble voice lead the cultivators of the healing art to have recourse to it in cases where it may be indicated!—*Gazzetta Medica Italiana Federativa Toscana*, 28 October, 1851, p. 554.

[We think it right to give the Italian surgeon's description of the above operation; but to us it appears that the ordinary mode of removing even large cancerous tumours of the tongue through the mouth (if it be prudent to excise them at all) is not alone much more feasible, but greatly to be preferred. Our experience in the treatment of wounds in the infra-maxillary region, acquired in cases of attempted suicide, induces us to place but little reliance or hopes of union by the first intention in any large wound made into the mouth through this space.]

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*On some Effects of Atropia and of the Sulphate of Veratria.* By Dr. GIACINTO NAMIAS.

FOLLOWING the example of Dr. Lussanna, the author tried atropia in the treatment of epilepsy, in the Civic Hospital of Venice, to which he is chief physician. The dose he employed was the twenty-fourth part of a grain, five or six times a day, dissolved in water by means of acetic acid, and he satisfied himself that this alkaloid is an efficacious remedy in many spasmodic diseases. He has also applied it by inunction on the sound skin, as recommended by Dr. Closio, in the proportion of a grain to a drachm of lard. The phenomena produced by its action when the dose used is too strong are, dilatation of the pupil, indistinctness of vision, confusion of ideas, slowness in answering, difficulty of certain voluntary movements, a sense of weakness, and occasionally vomiting. And since in epilepsy, as well as in many other forms of nervous spasmodic affections, particularly when of long standing, two etiological elements generally co-exist, viz., a permanent morbid condition or organic lesion, oftentimes only recognisable by the anatomist, and a peculiar predisposition in the nervous fibre determining the convulsions, atropia, by modifying the nervous susceptibility, will assist in diminishing the intensity and frequency of the attacks, and will thus give time for the cure or alleviation of lesions of the first class; and when an abnormal condition of the fibre exists alone, will be sufficient to eradicate the disease. The illustrious Bufalini, too, observes the author, arrived at the conclusion that tetanus consists of two elements, an exciting cause and a peculiar modification of nervous action, a special *neurokinesis*. The author believes atropia to be alway

useful in spasmodic affections; whether it be administered internally or applied topically, its action, when properly used, is not only safe but decidedly soothing.

As to the sulphate of veratria, recommended by Magendie in dropsies as an exciter of the action of the kidneys and bowels (effects not verified by Namias), he says that it acts upon the cutaneous surface, in various parts of which it produces a sense of pricking, formication and heat, which latter sensation extends from the throat and epigastric region to the skin itself. Of the sulphate of veratria, which is very soluble, the author gave from half a grain to two grains, in six ounces of water daily, in neuralgic affections and in rheumatic pains.

This salt excites the pulse, and in general produces perspiration, with alleviation of the pains; it is contra-indicated if acute inflammation or fever be present, causing in such cases vomiting, frequently diarrhœa, tormina, and prostration of strength. In order to increase its good effects, the author, at the same time that it was given internally, directed the ointment of atropia to be applied externally, and quotes cases showing the beneficial results of this mode of treatment. Its external application gives rise to the same phenomena as its internal exhibition. The author is engaged in investigating chemically the cutaneous exhalations in persons treated with veratria, and from such a man science may expect much.—*Giorn. Ven. delle sc. Med.* 1851.—*Bulletino delle Scienze Mediche di Bologna*, August and September, 1851, p. 178.

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*On Chromic Acid as an Escharotic.* By Dr. FROMER.

CHROMIC acid has been, on the recommendation of Dr. Heller, tried in many cases as an escharotic, in the syphilitic wards and clinique of Professor Sigmund; the results hitherto obtained would justify a further trial of it in cases in which a deeply penetrating, gradual caustic, and one constant in its effect, would be indicated. When employed in substance, its action is exceedingly slow and gradual, occupying many hours; nevertheless in intensity it exceeds that of the caustic alkalies. In extremely concentrated solution (to insure saturation, a slight excess of crystals should be allowed to remain undissolved in the fluid) its action is less penetrating and less gradual; but, at the same time, it is more continuous than that of all other known caustics; on the other hand, the more dilute the solution, the more transient and superficial is the effect. The facility with which its action can be thus graduated renders it in all cases a suitable escharotic.

In order to test its action, the first experiments were performed on new growths and marks; viz., on pointed and broad condylomata, occupying the genitals and inner surface of the thighs in different individuals, and varying in thickness from two to eight lines; and in their longest diameter from half-an-inch to two and a half inches.



*Modes of Application.*—The surrounding parts having been protected by folds of lint, strips of adhesive plaster, &c., the chromic acid in substance (mixed with sufficient water to form a paste) is spread with a spatula on the part to be cauterized, so as to form a layer scarcely a line in thickness, which is covered with lint, kept in its place by adhesive plaster. The concentrated solution is applied by means of a glass rod, a pencil of asbestos, or, if necessary, a hair pencil (which, if immediately washed, can be employed again); it is left exposed for a few minutes, and then covered with dry lint.

*Objective and Subjective Phenomena.*—Chromic acid in solution communicates its colour unaltered to the parts moistened with it; after a few minutes the colour becomes gradually darker, changing from light brown to dark brown. The parts to which it has been applied remain moist, bright, and glossy for from ten to fifteen or twenty minutes; the acid then gradually dries, and changes the surface it rests on to a dark brown, partly bluish black, dry elevation, which slowly becomes thicker, and after forty-eight hours either falls off spontaneously, about one or two lines in thickness, or can easily be separated in its entire extent. The ulcerated surface left by the scab is generally covered with a firmly attached greyish-white exudation, which, in from twenty-four to forty-eight hours gives place to clean granulations, of which the cutis forms the substratum. The scab formed after the application of undissolved chromic acid is thicker, adheres longer (from five to six days), and the loss of substance is very much more considerable. The inflammatory symptoms in the surrounding parts are very trifling, the redness is scarcely two or three lines in width, and there is little or no swelling.

If chromic acid be applied to sound parts, a moderate sensation of burning commences in ten or fifteen minutes after the application, increasing for three or four hours, and then diminishing for about an equal space of time. Its application to ulcerated or excoriated parts excites similar sensations instantaneously; these likewise increase for four or five hours, seldom remain stationary, and again diminish during an equal period.

Undissolved chromic acid causes severer and more permanent pains; these are also more violent when the cutis vera itself, and not morbid growths, is cauterized, and for this reason each succeeding cauterization of such growths is attended with more pain than the preceding one. The pain does not disturb the patient's sleep, is incomparably less than that caused by other caustics, such as sulphuric or nitric acid, nitrate of silver, nitrate of mercury, corrosive sublimate, caustic potash, Vienna paste, &c. The solid chromic acid, on account of its penetrating action, should be employed but seldom, and then with extreme care; and for the same reason the concentrated solution, which has been found sufficient to destroy condylomata of seven lines in height in six applications, is to be preferred.

According to the experiments of Dr. Heller, all organic compounds are soluble in the easily deoxidizable chromic acid, their ultimate elements being raised to a higher degree of oxidation, and

partly uniting with the acid. An elevated temperature accelerates this process. Smaller animals (mice, birds, &c.) were so completely dissolved by chromic acid within fifteen or twenty minutes, that no trace of their bones, skin, hair, claws, or teeth could be discovered.

Chromic acid would thus appear to be not only a gentle and gradual escharotic, but also a complete and rapid solvent.—*Wiener Medizinische Wochenschrift*, 1851, No. VIII. p. 119.

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*Special Pharmacopœia for Diseases of the Skin.* By ALPHEE CAZENAVE, M. D., Physician to the Hôpital St. Louis, Paris.

[UNDER this title, M. Cazenave, Editor of the *Annales des Maladies de la Peau*, proposes to bring in succession before his readers the principal therapeutical agents which have been employed in the treatment of diseases of the skin and of syphilis, distinguishing those whose efficacy has been best established, and adding the results of his own experience; interrupting, however, this bibliographical review whenever it may be necessary to make known newly-discovered remedies; and from the deservedly high character which he has acquired as a dermatologist, we feel confident that a translation of his observations, with occasional editorial notes, cannot fail to be acceptable to our readers.]

ACIDS.—Acids have been chiefly employed in therapeutics, either in a state of great dilution or as caustics. They are used in both ways in the treatment of diseases of the skin and of syphilis, in which they are moreover employed in various forms as topical applications. The *dilute mineral acids* especially, are given internally in a great number of eruptions, amongst others, in *psoriasis*; but chiefly in affections complicated with pruritus, or accompanied by an oozing discharge. M. Cazenave frequently makes use of the following formula:—

Dilute sulphuric acid, by weight, fifteen grains; infusion of soap-wort<sup>a</sup>, sixteen ounces; syrup of capillaire, one ounce. Mix; let three glassfuls be taken every day,—chiefly prescribed in eczema and impetigo, in the acute stage and when an oozing discharge has taken place.

Drinks, acidulated with hydrochloric and nitric acids, are administered in a similar manner. The latter has also been extolled in secondary syphilis, in which, indeed, it has principally been recommended.

ACETIC ACID. *Lotions with Vinegar.*—Take equal parts of distilled vinegar and water; mix: a local application to the spots of

<sup>a</sup> *Saponaria officinalis*, soap-wort, an indigenous plant in the British islands, is not employed in regular practice in this country, but is highly thought of as a domestic remedy among the lower orders. In France it is an officinal plant, and its preparations are much used and esteemed as depuratives in diseases of the skin. The infusion is prepared by macerating for four hours an ounce and a half of the dried roots, bruised, and three drachms of liquorice root, in a pint of boiling water, expressing and decanting the clear liquor. The syrup of orange flowers may be substituted for the syrup of capillaire, as the latter is not kept in the shops here.—ED.



purpura. *Ointment of La Charité for Tinea*.—Take of distilled vinegar, 150 parts; wheaten flour, 25 parts; black pitch and Burgundy pitch, of each 25 parts; melt the pitch, suspend the flour in the vinegar, previously heated, and mix. This preparation, spread on a piece of leather, and afterwards applied to the head, constituted the cruel treatment of the “*calotte*,” for removing the hairs in this disease. Strips of diachylon plaster, to which melted ammoniacum has been added in the preparation, are now advantageously substituted for it. *Pomade*.—Take of pure acetic acid, by weight, two ounces; cold cream and olive oil, of each six ounces; mix by trituration. This ointment has been successfully employed in scabies.

NITRIC ACID. *Nitric acid lotion*.—Nitric acid, one part; distilled water, 96 parts; mix. Used as a lotion in scabies. *Pomade Oxygénée d’Alyon*.—Nitric acid, one part: lard, eight parts. In diseases of the skin, and especially in scabies, this pomade was formerly much thought of. It is now but little used.

TANNIC ACID (TANNIN).—Tannin is a very powerful vegetable astringent; it acts in the same manner as tonics. It is advantageously employed in the treatment of leucorrhœa, blennorrhœa, and mercurial stomatitis. *Gargle*.—Tannin, half a drachm; infusion of roses, eight ounces; honey of roses, one ounce and a half: as a gargle in mercurial salivation. *Astringent Injection*.—Tannin, from fifteen to thirty grains; infusion of roses, eight ounces: in blennorrhagia. *Vinous Injection of Tannin* (Ricord).—Port wine, four ounces; tannin, fifteen grains: in blennorrhagia in the male or female. Tannin has also been employed in the form of ointment to prevent falling out of the hair. *Pomade* (Stiège).—Butter of cacao<sup>a</sup>, ten drachms; olive oil, five drachms; tannin, two drachms; sulphate of quina, one drachm; aromatic spirits of ammonia, two drachms; mix: a portion to be rubbed in night and morning in cases of alopecia. Tannin is one of the remedies I have found to succeed best, and which I consequently most frequently employ, in the treatment of *herpes tonsurans*. I usually adopt the following formula:—Tannin, fifteen grains; lard, one ounce; water, a sufficient quantity; mix: to be rubbed to the affected parts every evening. I generally direct the patient to wash the parts in the morning with an alkaline lotion (biborate of soda, half a drachm; distilled water, eight ounces). The proportion of tannin may be increased according to the age of the child, or in cases where the skin is not very irritable.

ACONITE.—Aconite is exhibited internally with various indications, as a narcotic, sedative, sudorific, resolvent, diuretic, &c. It has been recommended as useful in a considerable number of dissimilar diseases; amongst others, it has been successfully employed in the treatment of secondary syphilitic affections. Biett prescribed it, either alone, or combined with a preparation of mercury, in the sequelæ of syphilis. He recommends the following pills:—Alcohol-

<sup>a</sup> The concrete oil expressed from the roasted and subsequently macerated seeds of the theobroma cacao or chocolate tree,—cocoa-nut oil.—ED.

lic extract of aconite, half a drachm; powdered marsh-mallow root, as much as may be sufficient; mix, and make into forty-eight pills: one to be taken night and morning in syphilitic affections and in pains in the bones. I have latterly had recourse, and with success, to the sedative effects of aconite in the treatment of papular eruptions of the skin<sup>a</sup>.

ALUM.—Sulphate of alumina and potash is a useful astringent both in injections in blennorrhœa, and in lotions in freckles, in excoriations of the skin, and for chilblains. *Fuliginous Injection of Alum*.—Decoction of soot<sup>b</sup>, sixteen ounces; alum, four scruples; water, six ounces; mix: in leucorrhœa (Soubeiran). *Injection for the Urethra* (Ricord).—Rose water, six ounces; alum, fifteen grains; mix. *Injection for the Vagina* (Ricord).—Water, thirty-two ounces; alum, thirty grains; mix. *Astringent Lotion* (Foy).—Sulphate of zinc, one drachm; alum, one drachm; plaintain water<sup>c</sup>, sixteen ounces: against freckles and chilblains.

STARCH is a white, inodorous, insipid substance, much employed in medicine as an analeptic and emollient. I am in the habit of using it in a great number of acute eruptions, as in lichen, herpes, impetigo, and acne. Starch may be employed negatively to replace lotions and ointments, which very often are badly borne. In a great number of cases, it will advantageously replace poultices of potatoes, which cannot always be long employed, and after the use of which it may be inconvenient to leave the skin exposed, without any protection, to the contact of the air. Lastly, starch is an efficacious means of allaying itching. In cases of pruritus of the scrotum, anus, groins, &c., whether without the previous use of lotions, or after having applied an alkaline or other solution, and having carefully and completely wiped away the moisture, it is very useful to dust the affected parts with a powder-puff charged with dry starch. In general, I make use of pure powdered starch; but, under some circumstances, I find it advantageous to combine with it white oxide of zinc, camphor, &c. *Starch Powder*.—White oxide of zinc, two drachms; powdered starch, four ounces; mix: to be sprinkled night and morning on surfaces affected with acute eczema, acne rosacea, impetigo, or herpes. Another form I employ is, white oxide of zinc, two drachms; camphor, half a drachm; powdered starch, four ounces; mix: to be sprinkled on the groins, the axillæ, or the genitals, in cases of prurigo.

AMMONIA.—The volatile alkali and its compounds are, generally speaking, very active therapeutic agents, and are employed for various purposes. The carbonate has been successfully administered in certain forms of secondary syphilis. *Mixture de Perilhe*.—Take

<sup>a</sup> See *Annales des Maladies de la Peau*, vol. iii. p. 28.

<sup>b</sup> Wood soot, four ounces; boiling-water, a pint and a half; boil down to a pint and strain. (Neligan's *Materia Medica*, third edition, p. 35.)—ED.

<sup>c</sup> Prepared by distilling four pounds of the fresh herb of plantain (*plantago major*) with a gallon of water, with a moderate heat, until half a gallon comes over; as it is but a very weak astringent, distilled water may be substituted.—ED.



of balm (*melissa officinalis*<sup>a</sup>), four ounces; senna leaves, half an ounce; water, thirty-two ounces. Infuse, strain, and in eleven ounces of the strained infusion dissolve sugar, four ounces; carbonate of ammonia, one drachm. Half a wine-glassful to be given every six hours. In the same affections I have, with advantage, exhibited the following *ammoniacal mixture*:—Syrup of daphne mezereum, two ounces; syrup of tolu, four ounces; carbonate of ammonia, half an ounce; mix: a table-spoonful night and morning. Guided by analogy, I have latterly made use of the carbonate of ammonia in the treatment of cutaneous diseases, and have hitherto obtained favourable results from its employment in chronic eruptions. *Syrup of Carbonate of Ammonia*.—Carbonate of ammonia, half a drachm; compound syrup of sarsaparilla, six ounces; mix: from one to three table-spoonfuls daily in psoriasis and lepra vulgaris<sup>b</sup>. *Compound Mercurial Ointment*.—Take of mercurial ointment, one ounce; slaked lime, two drachms; muriate of ammonia, one drachm; sulphur, one drachm; mix. This ointment is employed in the hospital of Toulon, for the same purposes as mercurial ointment, in the treatment of syphilis. It has the advantage of staining the linen less, and of not exciting salivation. *Pomade de Gondret*.—Take suet and lard, of each one ounce, melt them in a wide-mouthed bottle, and add water of pure ammonia, two ounces; cork the bottle, and agitate briskly in cold water until the mixture has cooled. This blistering ointment has been successfully employed by Biett in the treatment of porrigo. *Ammoniacal Lotion*.—Take of water of pure ammonia, fifteen minims; decoction of bran, one pint; mix: as a wash in acne sebacea. This lotion has hitherto succeeded with me better than any other in this obstinate form of acne. Ammonia is also a very good topical application in the other varieties, and especially in the *acne indurata*; but in these it is better to dilute it with an aromatic infusion, as, for example, infusion of sage.

AMMONIACUM.—Ammoniac is employed in the treatment of favus as a substitute for the old pitch-cap; its application is much less painful than that of the latter, and was first proposed by M. Evens. A plaster of ammoniacum, spread on linen, is prepared and applied in strips to the head, previously well cleaned and closely shaved, so as not only to cover but to extend somewhat beyond the affected surfaces. These strips are generally allowed to remain on for several weeks.

ANTHRAKOKALI<sup>c</sup> (Carburet of Potassium).—This preparation was some time ago highly recommended in the treatment of cutaneous diseases. It was given internally in the form of powder, but was

<sup>a</sup> The fresh leaves and tops are the parts employed.—ED.

<sup>b</sup> See *Annales des Maladies de la Peau*, vol. iii. p. 315.

<sup>c</sup> Prepared by mixing five parts of Cannel coal in fine powder with seven of caustic potash while fused by heat. The mixture, on removal from the fire, is to be as quickly as possible reduced to powder, and without loss of time transferred to small, well-stopped bottles, in which it is to be preserved for use. (*Codex Medicamentarius Hamburgensis*, editio Altera, 1845.)—ED.

chiefly used externally as a pomade. In powder, a grain and a half was administered, combined with five grains of powdered liquorice, three or four times a day; according to Jourdan, it produced copious perspiration. The ointment consisted of fifteen grains of anthrakokali mixed with an ounce of lard; it was used as an inunction in eczema. Anthrakokali is now obsolete.

ANTIMONY.—Several antimonial preparations constitute active remedies in the treatment of syphilis, and of many cutaneous diseases; the most prominent are the sulphuret and the golden sulphuret. *Sulphuret of Antimony* (crude antimony) is the active ingredient in certain ptisans, which have become celebrated, and which are often indeed very efficacious in chronic affections of the skin, and especially in bad forms of secondary syphilis; for example, in the old ptisan of Astruc, the ptisan of Vigaroux, and particularly in the ptisans of Pollini and of Feltz. *Pollini's Ptisan*.—Dried walnut-peel, two and a half ounces; sarsaparilla and China root, of each three drachms; crude antimony, six drachms; pumice-stone, three drachms; water, forty-eight ounces; boil down to one-half (Guibourt): half to be taken morning and evening, daily, for two, three, or four weeks. The most unexpected results have followed the use of this decoction. *Feltz's Ptisan*.—Sarsaparilla, two ounces; isinglass, two drachms and a half; sulphuret of antimony, two ounces and a half; water, sixty-four ounces; boil down to two-thirds: this ptisan, of which the dose is a glassful, is justly considered to be a valuable antisyphilitic. Many physicians consider that sulphuret of antimony owes its active properties to the arsenic it contains. M. Rayer has proposed to substitute the arseniate of soda (in the proportion of the eighth of a grain to the quart), for the sulphuret of antimony in Feltz's ptisan. M. Guibourt recommends arsenious acid as a substitute.—*Annales des Maladies de la Peau et de la Syphilis*, tom. iii. et iv.



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PART I.  
ORIGINAL COMMUNICATIONS.

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ART. X.—*Observations on the Symptoms resulting from an Undescended Testicle, which were of so painful a Nature as to necessitate its Removal.* By JOHN HAMILTON, Surgeon to the Richmond Hospital, Examiner in Surgery to the Queen's University in Ireland, &c.

THE descent of the testicle during foetal life is sometimes, though rarely, arrested,—a fact familiar to the profession,—and instead of being by the eighth or ninth month in the scrotum, it is stopped either in the abdomen, in the inguinal canal, or partly within and partly without that canal,—more or less of its lower part protruding from the external abdominal ring;—or, lastly, in some part of the space between that ring and the scrotum.

If entirely within the abdomen, it causes no uneasiness, ex-

cept, perhaps, mental; and Mr. Curling<sup>a</sup> (contrary to the opinion of Hunter) believes that its structure is generally normal, —sufficiently so to discharge the natural functions of the gland. Should the testicle, however, be situated near to the internal abdominal ring, and during efforts get engaged in the commencement of the inguinal canal, much suffering is caused by the compression to which it is thereby subjected.

“I remember,” says Richter, “a young man, twenty years of age, who had a small hernia, and no testicle on the left side of the scrotum. The testicle was contained in the abdomen, and sometimes presented at the ring, causing violent pain and symptoms of strangulation, which rendered it necessary to push the gland back again. This object, however, could seldom be accomplished until more than twenty-four hours had elapsed and emollient cataplasms had been employed. The symptoms immediately ceased when the return of the testis was effected”<sup>b</sup>.

When the testicle is situated in the inguinal canal, or partly within and partly without the inguinal canal, its growth and further development are materially interfered with; and, being to a certain extent fixed in an exposed situation, it is unable to elude, as it does in the pendulous scrotum, various direct injuries, or the effects of violent corporeal exertions. Mr. Curling gives the case of a boy, ten years of age, in whom a kick on a testicle that had descended no lower than the groin caused death,—the inflammation that followed the violence extending into the peritoneal cavity, the serous sac in which the testicle lay communicating with it.

Occasionally it happens, that during a violent effort the testicle is suddenly forced into a new situation, where the compression to which it is subjected soon induces such pain and inflammation as to call for the most active antiphlogistic remedies. The case I am about to relate, and on which these observations are founded, affords a remarkable instance of these

<sup>a</sup> Diseases of the Testicle, p. 72.

<sup>b</sup> Lawrence on Hernia, p. 571, Fifth Ed.



injurious consequences from the malposition of the testicle. The symptoms, also, are at times so violent that (the tumour in the groin occupying the usual seat of inguinal hernia) they have been taken for those of strangulated intestine,—a mistake one would hardly imagine possible except by the most careless observer,—the absence of the testicle from the scrotum being sufficient evidence of the nature of the disease.

Mr. Pott's case, showing how such a mistake might happen, is sufficiently well known; but there is an example related in the *Revue Médicale*, by M. Delasiauve, where the operation for strangulated hernia was actually performed under the false impression that an inflamed undescended testicle was that affection. Of this I shall give a brief abstract:—

A boy, fifteen years and a half old, of delicate constitution, having long had a right inguinal hernia, perceived a swelling in the left groin. It was of moderate size, went up of itself, or was returned with the slightest pressure. When apparent, it was extremely sensitive, and when reduced, the place was constantly painful. In the course of many months it appeared and disappeared in this way several times. It was looked on as hernia, and supposed to be hereditary, his father having a rupture on both sides. But one day, without any effort having been made, the tumour appeared afresh, larger, harder, and more painful than usual. It was returned with great difficulty. Two days afterwards it came down again, with severe pain, colic, nausea, and sleeplessness. No effort succeeded in reducing it; and, in the belief that it was a strangulated hernia, the surgeons decided, on the fourth day, to operate.

M. Delasiauve, who was called in to assist, doubted the correctness of the diagnosis and of the intended treatment; he made a hasty examination and observed as follows: The tumour was in the direction of the inguinal canal, and extended below the external ring for six lines; it was hard, hot, and large. The pain was very great, and shot up into the abdo-

men. There was no fever, the countenance not altered, the belly soft and lax: no vomiting, and in the night he even had a natural motion. In spite of his remonstrances, however, the operation was proceeded with. The canal having been divided, a tumour appeared, larger than an egg, oval, elongated, terminating inferiorly in a *cul de sac*, moveable, without adhesion, and easily raised. The lowest part passed beyond the external ring more than half-an-inch. A cord, covered by a smooth membrane, went from it up into the abdomen. This cord at its junction made several torsions on itself. Behind, the tumour lay on the muscular wall of the abdomen, and on the superior part of the pubis. It was hard, shining, and of a deep white, meandered over by small vessels, so that from all these circumstances it looked unlike a coil of intestine. While it was being handled, with a view to its reduction, some part of it gave way, a quantity of serous fluid flowed out, and it became rather flaccid, and in feeling it the external tunic could be perceived to move over a body freely moveable in its cavity. The membrane being slit up, the testicle was discovered, redder, harder, and more uneven than natural, the sac in which it lay being the tunica vaginalis. It was only at this period that the scrotum was felt, and found empty on this side. The testicle was removed, and the inflammation which had attacked it had nearly passed on to gangrene; the epididymis was very hard and irregular. The patient made a good recovery.

In this case, inattention and ignorance led to the removal of the testicle: in that which I am about to relate it will be seen that the malposition of the gland in the groin gave rise to such distressing symptoms that its ablation was rendered absolutely necessary.

Mr. W., aged 45, always had a swelling in the right groin, which he and others fancied was a rupture. At one time he got a truss, but the pressure caused such pain that he could not bear it.



About seven weeks since, while lifting a heavy weight on board ship, he felt something in the situation of the swelling crack "like an egg-shell," attended with great pain, shooting up the back and round the hip. The pain was so severe that he could not stand. Leeches were applied; he was cupped on the loins and he was purged, with relief; but the pain again returned, with such general illness, that his brother-in-law sent for me, fearing that it was strangulated hernia.

I found a tumour, resembling in appearance and situation an inguinal hernia of the right side. It was situated in the inguinal canal, and a little below the external abdominal ring, about the size of a hen's egg. The integuments were natural, but so exquisitely sensitive, that examination could scarcely be borne. I ascertained, however, that it had much the feel of a rather firm hernia, that it was smooth and elastic, and *not moved by coughing*. That part of it which protruded below the ring was very hard, and somewhat irregular, and seemed even more tender than the rest. He suffered great pain, not only in the swelling, but up the abdomen to the right loin. He was sick in the stomach, *but the bowels were open*. Skin hot; tongue whitish. As no testicle could be felt in the scrotum of the same side, I had no hesitation in attributing the symptoms to inflammation of an undescended testicle. The inflammation was probably caused by the testicle having been violently dislodged from its usual position in the inguinal canal, and forced into a narrower one, where it became subjected to severe compression by the unyielding tendinous expansion of the external oblique muscle. The violence of the attack speedily yielded to leeches, tartar-emetic, and mercury, but the tumour still remained very sensitive, and that portion which projected external to the ring was hard and very tender: it was the inferior globus of the epididymis, as may be seen in the accompanying lithograph, and was unusually elongated. When he got up and attempted to walk, he suffered pain, shooting from the testicle

up the back, and was forced to go about with the body bent forwards, the erect position causing pain in the testicle. A fortnight had scarcely elapsed when, without apparent cause, the testicle became again inflamed, and in the short interval of seven weeks he had altogether four attacks of orchitis. The manner in which it took place was this: He would get apparently quite well, except some soreness of the lower end of the epididymis and pain shooting up to the back, and round the crest of the ilium, evidently in the track of the circumflex iliac nerve; but the swelling would have subsided, the firm, oval tumour have become a soft pulpy one, and tolerant of moderate pressure. After going about, however, for a few days, uneasy in the erect position and from the motion of walking, he would suddenly suffer such severe pain in the undescended testicle, that he had instantly to take to his bed, and undergo treatment. His own idea was, that the testicle had become displaced, for he was conscious of its moving, and then being "gripped." In one of these attacks the sudden increase in the size of the inflamed testicle was most remarkable, and the lower globules of the epididymis became distinct, very hard, and very tender; the tenderness over the testicle itself was intense, he could not even bear the weight of a piece of lint wet with lotion; from the same cause the first application of leeches gave such pain that I thought it counterbalanced any benefit derivable from them. At one time, about the hard lower globus of the epididymis there was a softer fluctuating swelling, and the pain and tenderness being then at their height, I almost looked to the formation of matter; but in proportion as the inflammation subsided, this soft fluctuating tumour receded. I know now that it was caused by effusion of serum into the tunica vaginalis of the undescended testicle.

As I have mentioned, I treated the first attack with leeches, cold lotions, antimonial, and mercury; but the subsequent attacks differently. In the second, I tried the anodyne plan re-



commended by Mr. Gray, of the Free Hospital, London, which I have found useful in several cases of the ordinary gonorrhœal orchitis: a pill composed of two grains of extract of hyoscyamus, with three of Dover's powder every fourth hour, warm poppy-head stupes, and finally a blister. The last certainly had a most surprising effect; directly it rose the pain and swelling subsided. In the last attack I removed the inflammation and its effects by a purge and blister alone.

This attack came on in a most unexpected manner: he had recovered from a former one more completely than usual, and, not to risk a relapse, he remained in bed for a few days after being to all appearance quite well; when turning in bed he felt the testicle suddenly slip and go wrong, and inflammation commenced immediately. It now became clear, therefore, that though these attacks yielded to treatment, no safeguard existed against their repeated return. In consequence of the effects of the first effort, the position of the undescended testicle had been so changed that it was not only uneasy during any moderate exertion, but liable in a moment to become further displaced, and to be injuriously compressed by the neighbouring parts. So circumstanced, he could not follow any calling which demanded the slightest effort; his future prospects were, therefore, as gloomy as his present state of suffering was distressing. Something more effectual must be attempted. Two plans presented themselves: first, to cut down to the external abdominal ring, slit it up, and that portion of the tendinous expansion of the external oblique muscle which forms the anterior wall of the inguinal canal, and which covered the testicle. This operation was suggested by Sir Philip Crampton in consultation. It appeared to me, however, that after all it might only prove palliative, for when the wound had healed, and cicatrization taken place, the hard cicatrix might be as bad as before. It would be little more severe to remove the

testicle altogether<sup>a</sup>. To the removal of the testicle the patient most readily consented, though it was explained to him that the operation was not quite free from danger, the risk depending in a great measure on whether the serous sac or tunica vaginalis in which the testicle lay communicated with the cavity of the abdomen or not.

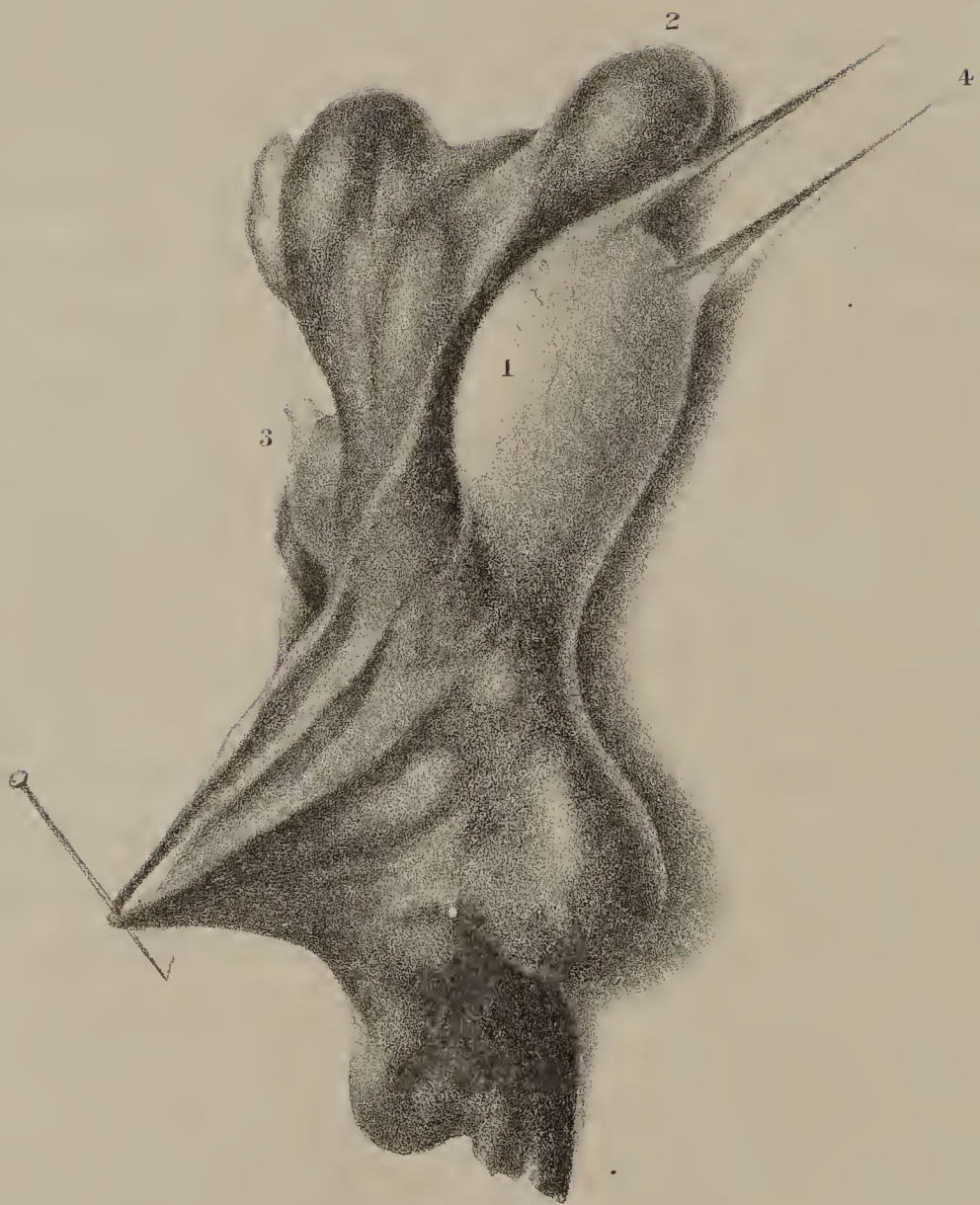
December 22nd, 1851. Assisted by Sir Philip Crampton, Dr. Frazer, and my pupil, Mr. Mulock, I removed the testicle, the patient being under the influence of chloroform.

An incision, between three and four inches long, was made over the tumour, and the layers of fascia rapidly divided down to the sac in which the testicle lay,—the tendinous fascia of the external oblique was much thinner than usual. The walls of the sac felt thick, and it evidently contained fluid. I made a small, cautious opening, when a quantity of transparent, yellow serum flowed out, the same in appearance as that of ordinary hydrocele. The sac was slit up, and the testicle could be seen lying in the tunica vaginalis; the membrane smooth and serous, but much more vascular and red than natural, and many bright red bands of adhesion existed between it and the surface of the testicle. There was no communication with the peritoneal cavity. The testicle was smaller than ordinary, its surface smooth and serous, but red; it was dissected out, along with its enveloping sac, from the subjacent parts, and the cord was also carefully separated. This was less easy and required more caution than in ordinary castration, as there was little space between the upper part of the testicle and the internal

<sup>a</sup> Mr. Curling mentions, that in Germany, to relieve the pain of an undescended testicle, the testicle was exposed, separated from the parts in which it lay, drawn down and fixed in a place made for it by incision in the scrotum. I rejected this plan because the final result of the case is not stated, and it appeared to me very doubtful whether a cord so stretched, and so fastened down by adhesions as this must be, would not be more painfully affected by the ordinary motions of the body than even before such an operation.









abdominal ring. A ligature was put round the cord, which was then divided, and the testicle taken away. There was very little bleeding. The case went on with scarcely a troublesome symptom, and in a little more than three weeks after, he walked into my study with the wound just healed, and with perfect freedom from any of his former morbid sensations.

After removal, examination showed the testicle to be smaller in the body than natural, but having the usual pulpy feel. The tunica albuginea was unusually thin, and when a portion of it was dissected off, the tubuli seminiferi appeared natural, but the division into lobes was much more distinct. When a piece of a seminal tube was placed in the field of a microscope, the structure was quite normal, but the fluid in it contained no spermatozoa, only seminal granules. Some of the fluids expressed from the vas deferens exhibited the same character,—no spermatozoa. The attempt was made by Mr. Carte to inject quicksilver down the vas deferens, but it stopped at little more than an inch from the orifice, in consequence, as we found, of its being blocked up by a yellow substance of firm consistence. The epididymis presented characters quite peculiar: it was unusually long and large; the inferior globus that was felt external to the abdominal ring was much elongated and very hard; there was an appendix from the upper part of the epididymis, and a single hydatid was discovered in it. The vas deferens, of the ordinary size, but very hard, had not the usual zigzag convolutions on itself, but was very straight. The same firm, yellow substance which blocked it up was also found to fill the vasa efferentia. These appearances are well exhibited in the accompanying lithograph, from a drawing by Mr. Connolly.

As far, therefore, as the condition of the testicle went, there can be no doubt that its functions were irretrievably gone, and no regret can be felt at its removal. The deposits were, no

doubt, the result of frequent attacks of inflammation: the intense redness of the tunica vaginalis, and the vascularity of the surface of the testicle, along with the adhesion, show this inflammation to have been of an unusually severe character.

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ART. XI.—*Aneurisms of the Arteria Innominata; their History and Differential Diagnosis from Aneurisms of the Arch of the Aorta.* By T. S. HOLLAND, M. D., M. R. C. S. L., Corresponding Member of the Société Anatomique, and of the Parisian Medical Society, Lecturer on Pathological Anatomy and Histology, Cork<sup>a</sup>.

(Continued from p. 96.)

WITH what disease is aneurism of the innominata most liable to be confounded? Doubtless, with aneurism of the transverse portion of the arch of the aorta; and it is by contrasting the symptoms and signs of the two affections that I shall endeavour to arrive at their differential diagnosis.

In order to make this comparison, the twenty-four most accurately reported cases (in which *post mortem* examinations were made) have been placed in a tabular form, drawn up in a

<sup>a</sup> The following case was omitted in the first part of this paper:—

*Wardrop on Aneurism*, page 104.—A man, aged 30, was seized with violent vomiting, during which a swelling suddenly started up in the hollow of his neck; a fortnight after he complained of pain in the right arm and side of the head. An aneurismal tumour occupied the space between the clavicular portion of the sterno-mastoid muscle and the edge of the trapezius, extending downwards and inwards behind the right clavicle; the sac increased rapidly, and respiration became impeded. *Post Mortem*.—The tumour had diminished in size, and arose from the innominata; one of its divisions extended upwards by the side of the trachea, as high as the cricoid cartilage; a second lobe stretched along the clavicle to one-third of the length of that bone; and a third passed upwards and outwards, between these two, to the anterior edge of the trapezius, while the entire sac rested on the arch. The carotid was obstructed to the extent of half-an-inch, and a membrane stretched across the opening of this vessel into the innominata.



manner nearly similar to that in which have been recorded Dr. Greene's<sup>a</sup> twelve cases of aneurism of the transverse portion of the arch, as his essay contains the most complete collection of aneurisms of that part of the vessel with which I am acquainted; and their having been recorded by so accurate an observer, with the intent of arriving at a knowledge of the symptoms and signs proper thereto, leaves nought to be desired save that he had lived to continue his researches. Unfortunately, the same reliance cannot be placed on the record of cases of innominatal aneurism, as some of them were complicated with disease of the adjacent vessels, and the phenomena they presented were not noted with the accuracy that is necessary for affording materials for statistical induction, nor, moreover, is their number sufficient to stamp certainty on conclusions arrived at by their numerical comparison; I hope, nevertheless, to be thereby enabled to develop some of the elements of a diagnosis which clinical observation will, I trust, bring to perfection.

<sup>a</sup> Dublin Quarterly Journal of Medical Science, New Series, vol. ii. p. 1.

No.	By whom Reported.	Sex.	Age.	Tumour and Impulse.	Dyspnœa.	Cough and Voice.	Dysphagia.	Pains.
1	Mr. Wardrop,	F.	45	A pulsating tumour at the inner side of the sterno-mastoid, its base being the upper part of the sternum.	Great difficulty of respiration at times.	. . . . .	. . . . .	Severe pain through the left side of the head and neck.
6	Dr. Whiting,	M.	40	. . . . .	Constant dyspnœa, increased by exercise.	Harsh, crowing cough ; mucous expectoration, streaked with blood.	Difficulty in swallowing solid food.	Intense pain from front of face along right side of face and head.
7	Dr. Auchincloss,	M.	64	A pulsating tumour behind the right sterno-clavicular articulation, extending in the course of carotid and subclavian ; finally it occupied the entire right side of neck, pushing larynx and trachea two inches to left.	Dyspnœa prevented sound sleep.	Frequent, dry, tickling cough, and hoarseness of voice.	. . . . .	Numbness and shooting pains in right arm and in right shoulder.
8	Dr. Henderson,	F.	59	A pulsating tumour extended from the third right rib to two inches above sternal end of right clavicle, and outwards to an inch and quarter from the sterno-clavicular articulation.	Great difficulty of breathing.	Paroxysmal cough.	. . . . .	. . . . .
9	Dr. Campbell,	M.	48	A pulsating tumour appeared at both the tracheal and external side of the right sterno-mastoid, and within the chest, as low as cartilage of second rib.	. . . . .	. . . . .	. . . . .	Pain in right shoulder, right side of head and neck.
10	Mr. Lyon,	M.	43	A pulsating tumour extended from the right side of thyroid gland to the sternum, and under the inferior portion of the sterno-mastoid muscles.	. . . . .	. . . . .	. . . . .	Pain in back of neck and right shoulder.
11	Dr. Wishart,	M.	40	Over the upper part of the sternum a strong impulse can be felt, and a murmur is heard extending to the neck.	Great dyspnœa.	Suffocative cough ; voice a whisper ; hæmoptysis.	. . . . .	. . . . .
14	Mr. Shaw,	M.	50	The hollow below the right clavicle was filled up, and pulsated. Seven months after, a tumour rose above that bone. Sternal end of clavicle pushed forward.	Orthopnœa.	Dry cough ; voice at first hoarse, afterwards a whisper.	Slight difficulty in swallowing.	Intense pain in right side of neck and right arm which became numb and œdematous ; finally both sides so.
15	Mr. Shaw,	M.	33	No aneurismal tumour externally.	. . . . .	. . . . .	. . . . .	. . . . .
19	Dr. Stokes,	M.	34	At first a tumour could be felt deep behind the right clavicle, and finally rose above it. Trachea displaced so as to correspond to a line drawn from the middle third of the clavicle. Paraplegia of left side.	Dyspnœa.	Cough of a laryngeal character.	Difficulty in swallowing, diminishing as the external tumour increased.	Pain in chest, head, and neck ; numbness of right arm ; right side of face and left arm œdematous.
21	Dr. Hutton,	M.	47	Pulsating tumour to the outside of sternal attachment of right sterno-mastoid, afterwards it passed towards the middle of the neck.	Dyspnœa.	Dry cough.	Dysphagia less as the tumour rose above the sternum.	Pain in right shoulder and clavicle, extending up that side of neck and head.
24	Burns,	M.	. .	A pulsating tumour beneath the clavicular portion of right sterno-mastoid ; it suddenly increased in size, and dislocated the clavicle.	Difficulty of breathing.	Voice gradually became weaker ; cough towards the end.	Dysphagia towards the close of life.	Pain in right side of head ; pain and numbness of left arm ; right œdematous and lost power.



Part, Arteries, and Veins.	Respiration.	Percussion.	Auscultation.	Post Mortem Appearances.
No pulsation in right carotid or its branches ; vigorous in the left.	Respiratory sounds normal.	. . . .	<i>Bruit de soufflet</i> under the clavicular edge of the sterno-mastoid.	Aneurism from the origin of the innominata to its bifurcation ; aorta of natural size, calcareous deposit on it ; right carotid healthy.
Faints if he sits up for more than fifteen minutes.	Frequent attacks of catarrh.	. . . .	. . . . .	Aneurism of innominata lying behind and a little to right of the upper extremity of sternum ; cartilages of trachea absorbed, its caliber diminished more than half.
No pulsation in the right subclavian, brachial, or radial arteries.	. . . .	. . . .	. . . . .	An hour after death the tumour had disappeared, leaving a depression in its place. The aneurism engaged two-thirds of the innominata, the carotid to its bifurcation, and the subclavian ; the latter being obliterated ; sac had not burst ; aorta greatly enlarged.
Right radial pulse stronger than left ; lengthened interval between stroke of heart and radial pulses ; palpitation of heart and pain in cardiac region.	. . . .	Dulness on percussion over region occupied by tumour.	Above the clavicle an obscure murmur with sac's diastole, a feeble cooing sound with systole ; both feebler the more the heart is approached.	Innominata transformed into an elongated sac ; heart dilated ; one of the aortic valves folded back, thus allowing regurgitation.
Radials, subclavians, and carotids equally strong on both sides ; pressure on right carotid stopped the pulsations in the tumour more completely than compressing the subclavian.	. . . .	Right subclavian space sounded dull.	Double pulsation over the dull space, becoming weaker towards heart, with feeble <i>bruit de soufflet</i> ; neither thrill nor <i>bruit</i> in tumour above the clavicle.	Aneurism of the innominata engaging the transverse arch to origin of carotid, which is slightly dilated ; the descending aorta, as low as the diaphragm, dilated, and calcareous deposits upon it ; right lung condensed at its superior part from pressure of the sac.
Carotids pulsated normally ; right subclavian and radial scarcely to be felt.	. . . .	No dulness on percussion.	No <i>bruit</i> over any part of tumour ; action of heart healthy ; no absence of respiration in any part of the chest.	Aneurism of the innominata, extending from the cricoid cartilage to the arch of the aorta, the latter being slightly involved ; rupture into the right pleura.
Pulse in right wrist imperceptible ; for a month before death no pulsation could be felt in the carotids.	. . . .	. . . .	<i>Bruit de soufflet</i> over the tumour ; moist rales over both sides of the chest.	Aneurism of the entire anterior wall of the innominata spontaneously cured, the vessel being obliterated ; extensive atheromatous deposit in aorta ; left carotid, right carotid, and subclavian blocked up with fibrine ; left vertebral and subclavian enlarged ; tubercular cavities in lungs.
No pulsation in right brachial or radial ; 76 in left ; carotids equally strong ; veins in front of neck on the right side were dilated.	. . . .	. . . .	. . . . .	Enormous lobulated aneurism of innominata pressing on the trachea ; dislocation of sternal end of clavicle ; aneurism of the arch the size of a nutmeg ; right subclavian obliterated at its orifice ; right vertebral, thyroid, and internal mammary obliterated at their origin ; right subclavian vein lost in the walls of the sac.
Right pulse smaller and weaker than left ; veins on face, neck, chest, and abdomen enlarged.	. . . .	. . . .	At the middle of upper portion of sternum the heart's action can be heard accompanied by a slight bellows sound.	Aneurism of the innominata ; internal jugular and brachio-cephalic veins obliterated ; lymph in the pericardial sac ; thoracic duct involved in the dense structures round the tumour.
Pulse very indistinct in right wrist, while none could be felt in the brachial or subclavian ; veins of head and neck engorged, especially on the right side.	Respiration intensely puerile in left lung, very feeble in right ; bronchitis in left lung.	Dulness at external end of right clavicle.	Double pulsation at sternal end of right clavicle, with strong impulse, becoming weaker as the heart was approached ; no <i>bruit de soufflet</i> in any part of the chest.	Aneurism of the innominata ; right carotid artery and jugular vein obliterated ; right and left venæ innominatæ and subclavian obliterated ; arteries of left side unaffected ; aorta dilated, its coats thickened ; apex of right lung compressed, as also the trachea.
Right pulse smaller than the left.	. . . .	. . . .	No <i>bruit de soufflet</i> .	Aneurism of the innominata had opened into the trachea by a very small orifice ; atheromatous deposit on aorta ; the vertebral rose from the arch ; a coagulum was found in the right subclavian artery.
Right radial and carotid pulsated weaker than the left ; thrilling sensation felt in the subclavian and carotid.	. . . .	. . . .	. . . . .	Aneurism of the innominata and arch of the aorta had displaced the trachea and œsophagus to the left, and the descending vena cava to the right, it pressed the right subclavian and carotid arteries against the spine ; aortic valves ossified.

No.	By whom Re-ported.	Sex.	Age.	Tumour and Impulse.	Dyspnœa.	Cough and Voice.	Dysphagia.	Pains.
27	Dr. Mott,	M.	51	Pulsating tumour under the insertion of right sterno-mastoid and within the chest, as low as the second rib.	Wheezing in breathing, increased by exercise.	. . . . .	. . . . .	Cedema and numbness of right arm.
28	Dr. Morrisson.	M.	42	A pulsating tumour between the insertions of the right sterno-mastoid.	Dyspnœa increased by walking.	. . . . .	. . . . .	Pain in right side of head and neck, also in the cardiac region.
29	M. Genest,	M.	44	Pulsating tumour extended from right clavicle to the chin; gangrenous ulcer at its apex.	Paroxysms of dyspnœa.	. . . . .	Difficulty in swallow-ing.	Right arm para-lysed.
30	M. Michon,	. .	. .	A pulsating tumour, a little to the right of the median line of sterno-mastoid, had pushed the larynx to the left side.	Attacks of suffocation.	Voice short, finally inaudible; slight cough.	No dyspha-gia.	No hemiple-gia.
32	M. Boinet,	M.	57	A pulsating tumour, on right side, extended from the sixth rib to the superior border of thyroid cartilage; trachea dislocated and compressed; clavicle dislocated.	Orthopnœa.	Violent fits of coughing, caus-ing congestion of face, and loss of consciousness; voice feeble.	. . . . .	Pain in the head.
33	M. Mazet,	F.	47	Pulsating tumour behind right sterno-mastoid muscle, extend-ing into the chest.	Dyspnœa.	Cough, with expectoration.	. . . . .	. . . . .
34	M. L'Hommeau,	M.	40	A pulsating tumour in the neck.	Dyspnœa.	. . . . .	. . . . .	Pain along the œsophagus, in right side of neck and arm; left arm cold and blue.
35	M. Chapelle,	M.	46	A pulsating tumour, its base covered by the sternum and inner part of right clavicle.	Difficulty of breathing. Died as-phyxiated.	Voice a little hoarse.	Slight diffi-culty in swallowing.	Pain in right shoulder and arm, at times very intense.
37	M. Dubrueil,	M.	37	Pulsating tumour above the right sterno-clavicular articula-tion; clavicle dislocated, and ster-num pushed forward before death. A second tumour as high as fifth cervical vertebra.	Dyspnœa increased as the tu-mour en-larged.	Frequent cough; voice weak and cavernous.	. . . . .	Pain in upper part of chest, low down in the neck and right arm.
39	M. Dubrueil,	M.	Middle aged.	A pulsating tumour extended from internal third of right cla-vice (where it first appeared) to sternal insertion of left sterno-mastoid, and into the chest as low as the third rib.	Dyspnœa.	Violent fits of coughing, with-out expectora-tion; voice raucous; apho-nia at times.	Deglutition always dif-ficult, and sometimes impossible.	Right arm cede-matous, right side of face wasted.
44	Dr. Hampeis,	M.	62	A pulsating swelling between second and third ribs, on right side, finally it spread over the sternum.	. . . . .	Cough, with bloody expecto-ration.	Difficulty in swallow-ing.	Feeling of cold down right arm; burning pain in the throat.
45	Dr. De Renzi,	M.	46	No tumour mentioned.	Difficulty in breathing; trachea fil-led with mu-cus difficult to be expec-torated.	Convulsive cough, and slight aphonia.	Difficulty in swallow-ing.	Pain in right cla-vascular region, loss of sensi-bility in right arm; vague pain in throat extend-ing finally to left side, shoulder, and arm, with numbness.



Heart, Arteries, and Veins.	Respiration.	Percussion.	Auscultation.	Post Mortem Appearances.
No right radial pulse, and the carotid on that side weaker than the left.	Respiration interrupted by pressing the tumour.	. . . .	<i>Bruit de soufflet</i> over the tumour.	Aneurism of the innominata engaging the root of the carotid and subclavian; trachea quite flattened; clavicle dislocated.
Pressure on the right carotid did not diminish the size of tumour, but right pulse became fuller; pressure on right subclavian rendered pulsations of the tumour stronger.	. . . .	. . . .	. . . . .	Aneurism of the innominata and root of carotid; it had not ruptured; the arch dilated, and calcareous deposits on it.
Right pulse weaker than the left.	Respiration accompanied by hissing sound.	. . . .	. . . . .	Aneurism of the innominata; the carotid and subclavian of the usual size, and not compressed; trachea, larynx, and œsophagus very much compressed from the right side.
Right radial pulse very small as compared with the left.	Respiration short, in fine scarcely audible.	Right sterno-clavicular articulation dull on percussion.	<i>Bruit de soufflet</i> over the chest, extending into right carotid.	Aneurism of the innominata; trachea pushed to the left side, but not flattened; right recurrent nerve compressed.
Right carotid pulsated more feebly than the left; radial pulses equal; veins on and about the tumour dilated.	Expiration sibilant.	Superior part of the chest dull on percussion.	<i>Bruit de soufflet</i> over the tumour; no abnormal sound on left side; œgophony on the right as high as first dorsal vertebra.	Aneurism of the innominata compressing the carotid, trachea, bronchi, and œsophagus; the latter perforated; larynx also perforated; trachea so compressed as to be triangular; pulmonary artery and veins compressed; aortic valves insufficient.
No abnormal sound with the heart's action; no pulsation in the right radial, brachial or carotid.	. . . .	. . . .	A sound analogous to first sound of heart heard under right clavicle; mucous and sonorous râles.	Vast aneurism of the innominata; right subclavian and carotid impermeable; trachea displaced a little to the left, and compressed; no dilatation of the aorta; softened tubercles in both lungs.
No pulsation in left radial or humeral arteries; right radial normal.	Sibilant respiration.	. . . .	Double pulsation heard at the top of sternum; sibilant and sonorous râles over the chest.	Dilatation of innominata; recent clot in left subclavian vein; left carotid arose by two distinct branches from the arch.
Right radial pulse smaller than the left.	. . . .	. . . .	Prolonged impulse over tumour, then a pause, followed by a short, clear sound; the motion and sounds not synchronous with heart.	Aneurism of the innominata engaging the carotid and subclavian.
Right radial and brachial arteries very feeble.	Respiration sibilant.	. . . .	<i>Bruit de râpe</i> over the tumour; <i>bruit de soufflet</i> over the chest; pulsations of tumour easily distinguished from those of the heart.	The innominata double its usual size, and almost entirely obstructed by solid fibrine; aneurism of transverse portion of the arch, inclining to the right, had burst into the trachea; the tumours flattened after death.
Left pulse natural; right radial and carotid very weak; no pulsation in right temporal.	Respiration loud and wheezing.	. . . .	Loud <i>bruit de soufflet</i> over the part within the chest, while a purring murmur is heard over the external part of the tumour.	The entire of innominata aneurismal; arch perfectly healthy; a coagulum rendered right carotid impermeable; subclavian diminished in size; flattening of four rings of trachea; sac had burst externally.
Heart's action irregular; veins on right side of chest varicose; occasional faintings.	. . . .	. . . .	. . . . .	An enormous aneurism of innominata had absorbed the upper part of sternum and superior ribs on right side.
Rhythm of heart irregular; left pulse very quick; no pulsation in right radial, brachial, or carotid.	. . . .	Entire chest dull on percussion.	Pectoriloquism over inferior of right lung anteriorly, and signs of cavity.	Aneurism of innominata, engaging the aorta, filled by a mass of fibrine, extending into the carotid; tubercles and a cavity in the inferior lobe of lung.

On contrasting the foregoing Table with Dr. Greene's, there will be found—

In Dr. Greene's Table of twelve cases of aneurism of the transverse portion of the arch:

1st.—External tumour in *one* case.

2nd.—Prominence of the upper portion of the sternum, or fulness of the infra or supra-clavicular region, in *eight* cases.

3rd.—Absence of tumour or elevation in *four* cases.

4th.—*No* dislocation of larynx or trachea.

5th.—*No* case in which dislocation of the clavicle occurred.

6th.—General venous congestion over the chest in *seven* cases.

7th.—Enlarged veins, confined to the chest and left arm, in *one* case.

8th.—Dyspnœa, more or less intense, in *eleven* cases.

9th.—Cough in *twelve* cases.

10th.—Hemoptysis in *two* cases, without tubercles existing in the lungs.

11th.—Voice altered in *six* cases.

In the Table of twenty-four cases of aneurism of the arteria innominata:

1st.—External tumour in *twenty-one* cases.

2nd.—Well-defined tumour above the inner third of the right clavicle and sternum in *twenty* cases; between second and third ribs on the right side in *one* case.

3rd.—No tumour mentioned in *three* cases.

4th.—Dislocation of larynx or trachea in *four* cases.

5th.—Clavicle dislocated in *four* cases.

6th.—Venous congestion of the right side of the body in *four* cases.

7th.—Venous congestion not confined to left side of the body in *any* case.

8th.—Dyspnœa, more or less intense, in *nineteen* cases.

9th.—Cough in *fifteen* cases.

10th.—Hemoptysis in *three* cases; one had tubercular cavities in the lungs.

11th.—Voice altered in *ten* cases.



12th.—Dysphagia in *nine* cases.

13th.—Pain over and around the chest in *eight* cases.

14th.—Pain confined to left side of the chest in *one* case.

15th.—Pain in right side of the head, neck, and right arm, not mentioned in *any* case.

16th.—Pain did not extend in *any* case from the right to the left side of the body.

17th.—Œdema not confined to right arm in *any* case.

18th.—Œdema of both arms in *two* cases.

19th.—Œdema of the lips and ankles in *one* case, and of the eyelids in *another*.

20th.—Œdema of the glottis in *two* cases.

21st.—Numbness of left arm in *one* case.

22nd.—Partial loss of sensation or motion was not confined to right arm in *any* case.

23rd.—Numbness of both arms in *one* case.

12th.—Dysphagia in *ten* cases.

13th.—Pain over the chest in *one* case.

14th.—Pain through left side of the head and neck in *one* case.

15th.—Pain in right side of the head, neck, and right arm in *twelve* cases.

16th.—Pain beginning in right side of the head, neck, or right arm, but finally extending to the left side in *two* cases.

17th.—Œdema of right arm in *four* cases.

18th.—Œdema began in the right and extended to the left arm in *one* case.

19th.—Œdema of the right side of the face and left arm in *one* case.

20th.—Œdema of the glottis *not* mentioned.

21st.—Numbness of left arm in *one* case.

22nd.—Partial loss of sensation or motion in right arm in *four* cases.

23rd.—Numbness began in the right arm and extended to the left in *two* cases.

24th.—Pulsations of left radial artery weaker than the right in *three* cases.

25th.—Pulsation of right radial weaker than the left in *two* cases.

26th.—Pulsation not absent in both radials in *any* case.

27th.—Respiration stridulous or wheezing in *eight* cases.

28th.—Percussion gave a dull sound over the part of the chest occupied by the tumour in *nine* cases.

29th.—Respiratory murmur weaker in left than in right lung in *eight* cases.

30th.—Respiratory murmur weaker in right lung in *one* case.

31st.—Double sound, similar to the sounds of the heart, heard over the tumour in *one* case.

32nd.—An abnormal arterial murmur heard over the sac in *eight* cases.

33rd.—In *four* cases it is stated that no abnormal arterial murmur was heard.

24th.—Pulsations of right radial, brachial, subclavian, or carotid arteries, weaker than on the left side in *nineteen* cases.

25th.—Pulsation in left radial weaker in *one* case.

26th.—Pulsation absent in both carotids in *one* case.

27th.—Respiration stridulous or wheezing in *five* cases.

28th.—Percussion gave a dull sound over the part of the chest occupied by the tumour in *five* cases.

29th.—Difference in respiratory murmur *not* recorded.

30th.—Respiratory murmur weaker in right lung in *one* case.

31st.—Double sound, similar to the sounds of the heart, heard over the tumour in *six* cases.

32nd.—An abnormal arterial murmur heard over the region of the sac in *ten* cases.

33rd.—In *three* cases it is stated that no abnormal arterial murmur was heard.

The order of frequency of the symptoms and signs were as follow :



In the twelve cases of aneurism of the transverse portion of the arch:

Cough occurred in . . .	12
Dyspnœa in . . . . .	10
Respiratory murmur altered in . . . . .	9
Dysphagia occurred in . .	9
Pain in . . . . .	9
Dulness on percussion in .	9
Congestion of superficial veins in . . . . .	8
Stridulous respiration in .	8
Arterial murmur in . . .	8
Voice altered in . . . .	6
Alteration in the arterial circulation in . . . . .	5
Œdema occurred in . . .	3
Partial paralysis in . . .	2
Hemoptysis in . . . . .	1
Double sound over the sac in	1
Larynx dislocated in . . .	0
Clavicle dislocated in . . .	0
External well-defined tumour in . . . . .	0

In the twenty-four cases of aneurism of the arteria innominata:

External tumour in . . .	21
Alteration in the arterial circulation in . . . . .	20
Dyspnœa in . . . . .	19
Pain in . . . . .	16
Cough in . . . . .	15
Dysphagia in . . . . .	10
Abnormal arterial murmur in . . . . .	10
Voice altered in . . . .	10
Partial paralysis in . . .	7
Double sound over the sac in	7
Œdema in . . . . .	6
Stridulous respiration in .	5
Dulness on percussion in .	5
Larynx or trachea dislocated in . . . . .	4
Clavicle dislocated in . . .	4
Venous enlargement in . .	4
Hemoptysis in . . . . .	2
Respiratory murmur altered in . . . . .	1

From this it is evident, that there is a well-marked difference as to the probabilities of certain symptoms and signs presenting themselves in these affections, and I shall examine them in the order of their frequency in innominatal aneurisms.

*External Tumour.*—Aneurisms tend to enlarge in the direction in which the distending force is applied; hence, a sac situated immediately above the aortic valves passes downwards

in obedience to the force of the returning column of blood, and as the direction of the current in the innominata is upwards and to the right side, a tumour formed on this vessel presents itself, in the great majority of cases, above the inner third of the right clavicle,—while the high position of the artery in the neck renders this one of the earliest symptoms. In aneurism of the transverse portion of the arch, the sac comes in contact with the posterior surface of the sternum; hence, external tumour is by no means so frequent as in the former case, and when it does occur it generally appears at one side of that bone, usually on the left, as the current is passing towards that side of the body. If the aneurism forms at the most superior part of the arch, it is resisted by the convex surface of the trachea behind, and by the sternum in front; then, passing upwards, it appears between the sterno-clavicular articulations; but in these exceptional cases the tumour does not show itself in the neck until the sac has acquired considerable size.

*Alteration in the Circulation.*—M. Tarral<sup>a</sup>, in a review of Wardrop's book on Aneurism, remarks, that feebleness of the pulsation in an aneurismal artery may be caused by the weight and volume of the sac compressing the vessel; “but if this compression is not produced, its caliber is augmented, and then we ought not to expect a diminution in the pulses, but rather an increase in intensity.” This is in direct opposition to the law, that a dilatation on a tube, through which fluid is sent *per saltum*, has the effect of weakening the force of the current and converting an interrupted into a continuous stream, while the pressure of the sac on the vessel may still further lessen the volume of the fluid; but this latter condition is not essential to its production. The arteries given off from an aneurismal vessel ought, therefore, to pulsate weaker than in the healthy condition, or than the corresponding arteries on the opposite side of the body. We might therefore conclude, from *a priori* rea-

<sup>a</sup> Journal Hebdomadaire de Médecine, 1829, vol. iv. p. 560.



soning, that in innominatal aneurism the pulses on the right side of the neck and in the right arm would be weaker than those in the left, and this is borne out by the cases before us.

Dr. Greene<sup>a</sup> remarks, that “retardation of the pulse was only well marked in the eighth case; and when it occurs, it is more characteristic of pressure on the main trunk than a feeble pulse in one wrist, which latter may depend on a high division of the radial;” and though the pulse at the wrist is naturally a little later than the impulse of the heart, still the interval must have been longer than usual in this instance, otherwise it would not have been particularly noticed. The same was observed in Dr. Henderson’s case, No. 8; and this is confirmed by M. Dubrueil, who, alluding to this sign as a help in the diagnosis, says<sup>b</sup>, “that when a tumour is situated on the innominata, or on the origin of the left subclavian, the pulse of the corresponding side ceases to be synchronous with that in the opposite arm,—sometimes even pulsating after its fellow, as well as being less developed;” but the diagnostic value of this sign can only be determined by future observations. Aneurism of the arch must affect equally the pulses on both sides of the body; but the tendency of the sac to enlarge towards the left should make us expect that it would in some cases compress the arterial trunks on that side, thereby causing the left pulses to be the weaker; this is confirmed by Dr. Greene’s and by other cases. A tumour of any kind pressing on the great vessels will cause comparative weakness, or even total absence of pulsation in the carotid, subclavian, or brachial; hence the fact of the right pulses being weaker can only aid us in the diagnosis, *after* the aneurismal character of the disease has been established by other symptoms: for example,—Dr. Watson<sup>c</sup> gives a case of exostosis on the first rib causing displacement of

<sup>a</sup> *Loc. cit.* page 23.

<sup>b</sup> Obs. et Réflex. sur les Anévrysmes de la Portion Ascend. et de la Crosse de l’Aorte, p. 157.

<sup>c</sup> Lectures on the Principles and Practice of Physic, Third Edition, vol. i., p. 308.

the clavicle and absence of the pulse in the corresponding arm. Another source of error is, the occasional anomalous distribution of the vessels; this most frequently occurs in the radials, but by examining the other vessels on the same side we shall be enabled to correct an opinion formed on the state of one artery: a clot, or any change in the interior of the vessel, may lessen the circulation through it, but the obstruction is at times only temporary, and if pulsation is absent or almost imperceptible in one vessel, while it remains also weaker in the other arteries on the same side, it would increase the probabilities that the trunk from which these vessels arose was aneurismal; for example,—if the right radial is obstructed, the velocity of the current in the right carotid will be increased until the effects of the aneurism are sufficient to counteract the hydraulic law, that if there are two orifices for the exit of a fluid, the closing of one increases the velocity of the current through the other. It is in this way the increase in size of the anastomosing vessels after a ligature has been applied is to be explained; and it were well to bear this observation in mind before operating on large arteries,—for in Case No. 1, pulsation could not be felt in the right carotid, but it re-appeared on the second day after the subclavian had been tied. This hydraulic law is well illustrated by Case No. 28, in which pressure on the right carotid increased the force of the pulsations in the subclavian, and *vice versâ*; but in order to produce this effect, both outlets must be free,—for in Case No. 2, pressure on the right subclavian increased the force of the pulsations, the sac being obliged to act more strongly, in order to make what had originally passed through two vessels now pass through one; but the pulsations were diminished by compressing the carotid,—for, on obstructing as here the main outlet, the sac became so full that it was unable to contract on its contents. In Case No. 4, the subclavian appears to have been in part obstructed, while the carotid remained comparatively free; and pressure on the subclavian causing the *bruit* in the carotid to cease is to be explained by the latter vessel be-



coming distended with blood, thereby removing the conditions necessary for the production of arterial murmurs; and the *bruit* being increased in the subclavian when pressure was applied to the carotid is referrible to the obstruction in the former being in part overcome, and the current passing with greater velocity through this partly-filled artery.

*Dyspnœa.*—We have seen that dyspnœa is rather less frequent in innominatal than in aortic aneurisms, and this is to be accounted for by the enlargement of the one being prevented by the sternum, thereby causing it to press more forcibly on the trachea than an innominatal aneurism could, as the latter can extend in all directions. Further, the lung or pulmonary artery is far more liable to be compressed in cases of aortic aneurism; and the left pneumogastric nerve, crossing the arch, brings it frequently in contact with aneurism of that part of the vessel, while the position of the right pneumogastric does not subject it to be compressed by aneurism of the innominata. Thus the anatomical relations explain why dyspnœa should be more frequent in aortic aneurism.

*Pain.*—This symptom appears to be less frequent in innominatal aneurism, and it has a marked tendency to be confined to the right side of the neck, right shoulder, and arm, extending from this to the opposite side in some cases. This is to be explained by the position of the sac, which requires to have enlarged considerably before it can press on the nerves going to the left side of the body. In some cases the pain was so intense as to form the chief subject of complaint, but its limitation, intensity, paroxysmal and apyrexial character, prove that it belongs to that class of pains caused by pressure on the nerves. There is in many cases a dull, gnawing, constant pain, which Dr. Law<sup>a</sup> considers to originate in the changes produced in bone by the pressure of an aneurismal tumour. That this double character of pain occurs independent of aneurism will be seen by re-

<sup>a</sup> Dublin Journal of Medical Science, First Series, vol. xxi. p. 469.

ferring to Dr. Battersby's<sup>a</sup> paper on Exostosis of the Spine; and further, bone may be extensively destroyed without pain being complained of; this Dr. Redfern<sup>b</sup> has proved to be true regarding articular cartilage; and the following cases extend its applicability to the osseous system:—An aneurism<sup>c</sup> of the transverse portion of the arch had caused an opening, the size of a shilling, in the sternum, through which the internal communicated with the external tumour, yet the patient enjoyed good health, and never complained of pain. M. Valleix<sup>d</sup> records a case in which the second, third, fourth, and fifth dorsal vertebræ were completely destroyed, the sac being only separated from the cord by the membranes, yet neither pain nor other symptom had occurred that could lead to the supposition that such extensive disease existed. An important question here suggests itself, viz., Do cancerous or other non-aneurismal tumours cause absorption of bone? M. Dubrueil<sup>e</sup> observes, “that aneurisms are not the only intra-thoracic tumours that dislocate, destroy, and perforate bones;” and though such cases may be recorded, I can only find two that bear upon this inquiry, viz.: cancer<sup>f</sup> of the œsophagus immediately above the cardiac orifice of the stomach, in which the bodies of the vertebræ behind the tumour were “softened and in a state of dissolution;” and M. Cayol<sup>g</sup> states that he has seen the dorsal vertebræ corroded by the contact of a cancerous mass. If these cases can be considered as examples of the absorption of bone, they form exceptions to a rule which, if placed beyond doubt, would form a valuable diagnostic symptom of aneurismal disease, viz., that aneurismal sacs are the only intra-thoracic tumours which by their pressure can cause absorption of bone.

\* Dublin Journal of Medical Science, First Series, vol. xxiv. p. 86.

<sup>b</sup> On Diseases of Articular Cartilages.      <sup>c</sup> Gazette des Hôpitaux, 1850, p. 482.

<sup>d</sup> Archives Générales de Médecine, vol. xxii., 1850, p. 430.

<sup>e</sup> Observ. et Réflex. sur les Anévrysmes de la Portion Ascend. et de la Crosse de l'Aorte, p. 165.

<sup>f</sup> Thèse, par M. Aussant, No. 19, 1801.

<sup>g</sup> Dictionnaire de Médecine, en 30 vols. Art. “Estomac,” p. 365.



*Cough*.—It is only necessary to allude to the position of the tumours, to the relations of the recurrent laryngeal winding round the arch on the left side and the subclavian on the right, and to the communication of this motor branch with the superior laryngeal or sensory nerve of the larynx, in order to explain why cough should be the most frequent symptom in aneurisms of the arch, while it was present in only five-eighths of the cases of innominatal aneurism.

*Dysphagia*.—This symptom is nearly twice as frequent in aortic as in innominatal aneurism, although, looking to the relations of parts, the reverse ought, at first sight, be the case; for it is difficult to conceive how the œsophagus could be compressed, as the trachea intervenes between it and the arch, while the lateral and high position of the innominata would appear to have placed it in circumstances more favourable for the production of dysphagia. It is to physiology we must look for the explanation of this apparent anomaly.

M. Claude Bernard, in his lectures at the College of France during the summer months of 1851, demonstrated, that section of the pneumogastric nerves caused forcible contraction of the lower part of the œsophagus. A rabbit, in whom these nerves had been divided, ate after the operation, but in a short time the food was regurgitated as fast as swallowed, and on killing the animal it was found that none of it had entered the stomach; the entire mass lay piled up in the œsophagus; and M. Bernard stated, that if the experiment was performed on a horse, the animal killed, the œsophagus cut across, and the stomach filled with water through the pyloric extremity, the cardiac orifice would contract with so much force that pressure might be applied on the stomach sufficient to rupture its walls, yet none of the fluid would escape through the cut end of the œsophagus, and this contraction persists for twenty-four hours after death. Dr. Greene remarks<sup>a</sup>, “that in thoracic aneurism the

<sup>a</sup> *Loc. cit.* p. 20.

dysphagia is deep-seated or intra-thoracic ; but at the same time a spasmodic stricture may exist higher up in the tube ;" and he goes on to observe, "that stricture from scirrhus, or other organic lesion of the œsophagus within the chest, is sometimes accompanied by a similar spasmodic state of the tube higher up, and can be explained on the doctrine of reflex irritation through the spinal marrow;" thus he was obliged to admit the existence of what at the time he wrote was a purely imaginary state of spasm, in order to explain the frequent occurrence of dysphagia in cases where the *post mortem* failed to exhibit marks of compression of the œsophagus; on examining Dr. Greene's Table, I find in Cases No. 7 and 8 dysphagia existed, yet no mention is made of the state of the œsophagus; in No. 12 this symptom existed, but there was "no apparent pressure on the œsophagus," and in No. 4 dysphagia was not complained of, though the aneurism "formed an oval tumour in the œsophagus." The frequency of dysphagia in aneurisms of the transverse portion of the arch is therefore, I believe, in many cases to be explained by the pressure exercised by the sac on the left pneumogastric nerve, as it passes over the arch, causing forcible contraction of the lower part of the œsophagus. This will be proved when considering the respiratory phenomena.

*Abnormal Arterial Murmurs*.—These sounds have a tendency to extend in the direction in which the current is passing, hence they are heard in the right carotid or subclavian in innominata aneurisms, while the murmur was confined to the region occupied by the sac in all Dr. Greene's cases in which this sign occurred, and if the sound was propagated in this latter affection, it would most probably be into the vessels on the left side, or, as has been frequently observed, downward along the spinal column posteriorly. It is improbable that a lesion confined to the innominata would cause a murmur to pass along the descending aorta, as, in order to get into this vessel, it should be prolonged in the opposite direction to that



of the blood passing through the former: the only case in which it might probably occur is that of an innominatal sac compressing the arch so as to diminish its caliber. The direction in which the arterial murmur extends will, therefore, be a guide to us in the diagnosis, and future observations should be directed to determine if an innominatal aneurism is capable of causing a murmur along the descending aorta. Dr. Greene<sup>a</sup> has often heard a *bruit de soufflet* and impulse in the arch, or even in its branches, in cases where tubercles had begun to be deposited in the lungs. M. Dubrueil<sup>b</sup> made a similar observation in a case of acute phthisis, in which he was led to suspect the existence of an aneurism of the arch, but the autopsy showed it to have been caused by the convexity of the arch being on a level with the superior end of the sternum. Professor Harrison<sup>c</sup> remarks, that "the innominata in some subjects ascends much higher than usual in the neck before it divides; in some persons I have seen it distinctly pulsating on the trachea above the sternum." This explains such cases as that of Dr. Houston's<sup>d</sup>, and proves that abnormal pulsation and perhaps murmur may exist without any other lesion being present than an unusually high position of the vessels.

*Alteration of the Voice* being most frequent in aortic aneurism is to be attributed to the position of the sac, rendering it more liable to compress the trachea or recurrent laryngeal nerve, than if the disease was confined to the innominata. In order to prove that pressure on the latter is capable of altering the tone of the voice, it is only necessary to refer to the highly interesting case brought before the Pathological Society of London, by Dr. Brinton<sup>e</sup>, as well as that recorded by Mr. Birkett<sup>f</sup>. Œdema of the glottis, which Dr. Greene includes

<sup>a</sup> *Loc. cit.* p. 29.

<sup>b</sup> *Op. cit.* p. 154.

<sup>c</sup> *Surgical Anatomy of the Arteries*, 1839, p. 24.

<sup>d</sup> Mentioned in Dr. Greene's paper, *loc cit.* p. 28.

<sup>e</sup> *Medical Times and Gazette*, January, 1852, p. 97.

<sup>f</sup> *Medical Times and Gazette*, February, 1852, p. 136.

among the causes of this phenomenon, did not occur in any case of innominatal aneurism.

*Partial Paralysis*.—This symptom was present in nearly a third of the cases of innominatal aneurism, and the relations of the tumour with the right brachial plexus explains why loss of sensation or motion began in the right arm in all the cases, with but one exception. Weakness of the left arm was complained of in one case of aortic aneurism; partial loss of power over both arms in another; but this latter symptom is comparatively rare.

*Œdema* began on the right side in the six cases of innominatal aneurism in which this symptom is mentioned, and may have been caused by pressure of the sac on the right vena innominata, rendered still more probable by the enlargement of the superficial veins being greater on the right side; still, pressure on the right common lymphatic duct may have been an additional cause of œdema.

*Double Sound over the Sac*.—The difference in the frequency with which this sign occurs in these affections is very remarkable, as it was heard seven times in innominatal, and only once in the cases of aortic aneurism.

Two opinions are entertained regarding this phenomenon, in one it is considered to originate in the sac, in conformity with which view Drs. Bellingham<sup>a</sup> and Lyons<sup>b</sup> have endeavoured to explain its occurrence; in the other it is referred to the second sound of the heart being propagated to the tumour. That the aneurismal sounds are often louder than those of the heart does not disprove that they may have originated in that organ, for their intensity would be increased by its being multiplied on the walls of the sac, in the same way as Dr. Stokes has explained why the pulsations of the aneurism are frequently more violent than those of the heart<sup>c</sup>, and the state of parts through which

<sup>a</sup> Dublin Medical Press, vol. xix. p. 260, *et seq.*

<sup>b</sup> Dublin Quarterly Journal of Medical Science, New Series, vol. ix. p. 343.

<sup>c</sup> Dublin Journal of Medical Science, First Series, vol. v. p. 432.



the sounds pass before they reach the ear, explains the difference in their tone. In a case of aneurism of the arch of the aorta, which I had an opportunity of examining in the Royal Infirmary of Edinburgh, double sound was heard over the tumour, without the faintest murmur, while a distinct *bruit de soufflet* accompanied both sounds of the heart; this, and similar cases, argue in favour of the opinion that an aneurismal sac can, *per se*, produce sounds similar to those of the heart, for, on the principle just stated, murmurs having their origin in the aortic valves ought to be louder over the aneurism than at the heart.

Dr. Watson<sup>a</sup> states, that double sound has been heard by himself and others over a popliteal aneurism, and he refers it to the flapping of the aortic valves. But how are we to explain that the faintest attempt at the production of a second sound is not heard in such cases either above or below the dilatation, and yet admit, that the heart's sounds are propagated to so great a distance as the popliteal artery is from the centre of the circulation. The position of innominatal aneurisms is such as would allow the forcible expansion and contraction of the sac, and this might in part explain the frequency of this phenomenon in disease of that vessel; but we are here met by the paradox, that aneurisms of the abdominal aorta, which are in no way confined by surrounding parts, rarely, if ever, give origin to a double sound. We are therefore obliged to take the facts as they are presented to us, and while using them for the purposes of diagnosis, trust to future observation for their explanation.

*Stridulous Respiration.*—It is only necessary to refer to the remarks that have already been made regarding the relations of aortic aneurisms to the trachea, pneumogastric and recurrent laryngeal nerves, in order to explain why stridulous respiration is nearly twice as frequent in these as in innominatal aneurisms.

<sup>a</sup> Lectures on the Principles and Practice of Physic, vol. ii. p. 311, Third Ed.

*Percussion.*—The exact size of the tumour may be marked out by percussing on the pleximeter, as stated by M. Piorry in Case 41; but the position of aortic aneurism renders this more necessary than in innominatal aneurism, as in the latter the sac appears, almost as soon as formed, above the right sterno-clavicular articulation, and we see by the Table that dulness existed in nine cases of the former, and in only five of the latter disease; but this is a valuable means of diagnosis, as it enables us to map out on the skin the exact position and size of the intra-thoracic tumour.

*Displacement of the Larynx or Trachea.*—Aortic aneurisms seldom reach high enough, or occupy a sufficiently lateral position in the neck, to cause displacement of any part of the air-tube, and even aneurisms of the innominata must have acquired considerable size before they produce this symptom; it occurred in four cases of the latter, and in none of those contained in Dr. Greene's Table.

*Dislocation of the Right Clavicle.*—Nothing could be more favourable for its occurrence than the position of the innominata, but the free exit from the chest allowed to these aneurisms renders this one of the least frequent symptoms, and though it occurs still less often in aortic aneurisms, yet its analogue, namely, protrusion of the sternum, is observed in many cases of this latter affection.

*Venous Congestion.*—From the cases before us it appears that this is among the most frequent symptoms of aortic, and one of the rarest in innominatal aneurisms, but the proportion in which it occurs in the latter will be probably increased by future observations. Dr. Greene remarks<sup>a</sup>, “that the more localized or limited the congestion, the greater probability of its dependence on the obliteration of a single trunk; the more general or unlimited, the greater the probability of its dependence on valvular disease of the heart.” We may, perhaps, go still farther, and state, that in cases of aneurism, the more the ve-

<sup>a</sup> Dublin Quarterly Journal of Medical Science, New Series, vol. ii. p. 8.



nous engorgement is confined to the right side of the body, the greater the likelihood of the disease being innominatal, for though the left vena cava crosses the arteria innominata, still, in all cases of disease of that vessel in which this symptom appeared, it began at the right side of the chest, neck, or right arm.

*Hemoptysis*.—This is the rarest of all the symptoms of internal aneurisms, as will be seen by reference to the Tables.

*Alteration in the Respiratory Murmur*.—M. Chomel<sup>a</sup> was the first to point out, that difference in the intensity of the respiratory murmur in the opposite lungs, occurring without disease of these organs, was indicative of internal aneurism. He observed complete absence of respiration over the left side in a young girl suffering from aneurism of the transverse aorta, and he considered it to be caused by the pressure of the sac on the left bronchus. Mr. Porter<sup>b</sup> was the first among British authors to mention this sign; and Dr. Stokes drew particular attention to its diagnostic value, in his *Researches on the Diagnosis and Pathology of Aneurism*<sup>c</sup>. In eight of Dr. Greene's cases the respiration was weaker over the left lung; and in the case of innominatal aneurism recorded by Dr. Stokes, No. 19, the right lung acted very feebly; but as the sac only compressed the trachea, it ought to have produced the same effect on both lungs. Can, then, the respiration be rendered weaker in one lung, without the lung or bronchus leading thereto being compressed or obstructed? M. Claude Bernard divided the pneumogastric nerves in a dog,—the respiration immediately fell from twenty to thirteen per minute; and there is every reason to believe, that section of one of these nerves would produce slowness and feebleness of respiration in the corresponding lung. In Dr. Stokes' case, "the vagus nerve also was

<sup>a</sup> Archives Gén. de Médecine, 1829, vol. xxi. p. 447.

<sup>b</sup> Dublin Journal of Medical Science, First Series, vol. iv. p. 211.

<sup>c</sup> Ibid. vol. v. p. 416.

compressed:" this was, I believe, the cause of weak respiration in the right lung<sup>a</sup>.

From the foregoing review of the symptoms present in these affections, the following rule may be deduced, viz.: *That the symptoms and signs of innominata aneurisms have a general tendency to occur on the right side of the body, and those of aneurism of the transverse portion of the arch of the aorta, on the left.* This has not escaped the notice of many of the authors

<sup>a</sup> In order to confirm or refute this opinion, I instituted the following experiment :

March 12. A two-year old, well-formed, healthy ass was cast, and the right carotid artery exposed, by Mr. R. Olden, Veterinary Surgeon; the sympathetic nerve was separated from the pneumogastric, and I excised a quarter of an inch of the latter; Dr. Hare was present at the operation. At 6 o'clock, immediately after the nerve was excised, respiration was louder and quicker than natural in both lungs, but in a few minutes the action of the right lung became weaker, and at 7 o'clock it acted feebler than its fellow on the opposite side; at 8 o'clock Dr. John Murphy examined the animal, and gave it as his opinion that the right lung acted feebler than the left.

March 13, 1 o'clock. Dr. Murphy observed a marked difference between the intensity of the respiratory murmur in the right and left lung, it being weaker on the right side.—4 o'clock; Dr. Finn examined the chest, and considered the respiration in the right lung to be weaker than in the left.—5 o'clock; Mr. G. Olden, Veterinary Surgeon, measured the circumference of the chest as accurately as possible, and it was evident that the right side was an inch smaller than the left; the latter expanded much more than the former, and the right intercostal muscles were in violent action, endeavouring to increase the depth of the right thoracic cavity, and thereby facilitate the entrance of air.

March 14, 5 o'clock. Very feeble respiration in the right lung. On applying the ear to this side, and placing the hand over the back, so as to come in contact with the ribs on the left side, the latter are felt moving freely, while the ribs under the ear are comparatively fixed.

March 15, 10 o'clock. Drs. Popham and Hare, after a careful examination, concluded that the right side did not expand as much, nor yield as loud a respiratory murmur, as the left. It is difficult to determine if dysphagia exists, but the animal appears to have slight difficulty in swallowing fluids.

I have thus succeeded in proving, *that interrupting the functions of the pneumogastric nerve produces feeble respiration in the corresponding lung; hence, feeble respiratory murmur on one side of the chest cannot be considered as proof of a pulmonary lesion; nor is it necessary that an air-tube should be compressed to produce this phenomenon.*



who have written on the subject, and whose opinions will now be briefly alluded to.

Wardrop<sup>a</sup> remarks, that in aneurism of the innominata “the tumour rises up from below the sternum and on the tracheal edge of the sternal portion of the mastoid, at which place the vessel is most uncovered; the situation of the tumour, however, varies according to the part of the artery that is affected:” he goes on to state, that “the force of the pulse is usually diminished in the branches of a trunk affected with aneurism; and when the innominata is the seat of disease, the circulation in the subclavian and carotid will be more or less influenced.” Dr. Crisp observes<sup>b</sup>, “that the *bruit*, if any be present, will be heard on the right and upper part of the sternum; that turgescence of the veins of the neck, and occasionally œdema of the hand and arm, will result from the pressure of the tumour; that the pulse in the right radial will generally be found smaller than in the left, and be sometimes absent.” The French Inaugural Dissertations contain notices of cases considered in their surgical relations, without presenting any remarks on the diagnosis of these diseases. M. Dubrucil states<sup>c</sup>, that the symptoms of innominatal aneurism advance much more rapidly than those of aortic, and that the appearance of a tumour in the neck is not followed by the same amount of relief from the most urgent symptoms in the latter as in the former case; that the greater portion of the tumour is extra-thoracic in one, and intra-thoracic in the other; that venous congestion of the head, apoplectic symptoms, œdema of the face and right arm, occur in innominata aneurism; that, as a general rule, the pulse on the side corresponding to the aneurism is weaker, in some cases scarcely perceptible, and not synchronous with its fellow, so much so that in some cases the

<sup>a</sup> Wardrop on Aneurism, p. 84, *et seq.*

<sup>b</sup> On the Structure, Diseases, and Injuries of the Blood-vessels, p. 204.

<sup>c</sup> Obs. et Réflex. sur les Anévrysmes de la Portion Ascend. et de la Crosse de l'Aorte, p. 120, *et seq.*

right radial pulsates after the left; that the right common carotid pulsates weaker than the left; and that it is to the combination of these symptoms we must look for the diagnosis, as no one is pathognomonic. M. Robert<sup>a</sup> is of opinion, that when the tumour pulsates under the insertions of the right sterno-mastoid muscle, and presents single pulsations, we may almost conclude that the innominata is the seat of the disease (double pulsation being considered by this author as indicative of aortic aneurism<sup>b</sup>). M. Velpeau's<sup>c</sup> remarks are similar to those of M. Robert, but he enters more fully into the details of treatment by operation. In the article on this subject in Rust's Dictionary<sup>d</sup>, the principles on which the diagnosis is to be made are, that innominatal aneurisms appear at one side of the right sterno-mastoid, and are accompanied by weak pulsation in the right carotid and subclavian.

It may be stated, in general terms, that the difficulties in forming a correct diagnosis are in proportion,—

1st. To the liability of the diseased part changing its position.

2ndly. To its anatomical relations rendering it liable to be confounded with disease of the adjacent organs.

3rdly. To its affording indications but little susceptible of being appreciated by our senses.

4thly. To our imperfect anatomical and physiological knowledge of the diseased structure.

The great difficulty in ascertaining the exact position of aneurisms of the great vessels is referrible to the first two conditions; and of this the following case, recorded by M. Martin Solon<sup>e</sup>, is an illustration:—

A woman, aged 67 years, suffering from dyspnœa and pal-

<sup>a</sup> Sur les Anévrysmes de la Région Sus-claviculaire, p. 89.

<sup>b</sup> *Op. cit.*, p. 70.

<sup>c</sup> Dictionnaire de Médecine, vol. xxviii. p. 466, *et seq.*

<sup>d</sup> Theoretisch-Praktisches Handbuch der Chirurgie, vol. ii. p. 57.

<sup>e</sup> Quoted in the Thèse, by M. Bestegui, 1841, No. 195, Obs. 1st.



pitations, was seized with giddiness, and lost consciousness for some hours in December, 1834; face swelled, lips blueish, right pulse becoming gradually weak. On admission to the Hôpital Beaujon, in May, 1835, no pulsation could be felt in the right arm as high as the brachial; upper part of sternum distinctly protruded, giving a dull sound on percussion; a murmur and pulsation, very faint, but synchronous with the pulse, are heard over the dull portion; a *bruit de soufflet* is audible where the subclavian becomes axillary; heart pulsates a little lower down than usual, and a murmur accompanies the first sound; veins on the chest are very prominent, especially at the right side; arms œdematous, more particularly the right, and its temperature is a little lower, but its sensibility remained as acute as that of the opposite arm. *Diagnosis.*—Vast aneurism of the innominata or subclavian; a mass of clot preventing the pulsations being more distinctly felt, and obstructing the circulation in the right arm. Two months after admission, the left arm and veins on that side of the chest became as much swollen as the corresponding parts on the opposite side; intense dyspnœa and dysphagia, with general serous effusion, occurred before her death on the 22nd February, 1836.

*Post mortem.*—An aneurismal sac, the size of a full-grown foetal head, arose from the extreme right of the transverse portion of the arch of the aorta; the superior vena cava and venæ innominatæ were obliterated, as was also the arteria innominata which lay to the left and behind the tumour, the opening from the aorta into that vessel being completely closed by a membranous diaphragm; the sac pressed posteriorly against the right bronchus, pushing the trachea and œsophagus far to the left side of the vertebral column. To the right, and external to the obliterated vessels, was a sort of aneurismal diverticulum, as large as an orange, which compressed the upper part of the right lung against the ribs; between this pouch and the lung, the phrenic nerve was seen flattened and incorporated with

the walls of the sac. The aneurism was continuous inferiorly with the ascending aorta, and had displaced the heart downwards; the compressed portion of the right lung was infiltrated with melanotic matter, and presented some softened tubercles scattered through it. (The preparation is in the Dupuytren Museum.)

This case presents us with a set of phenomena that would seem at first sight to be conclusive of the disease being innominatal; but in order to cause these symptoms the sac must be of great size, and the position of the arch allows it to be enormously dilated without producing an external tumour, while an innominatal aneurism would have appeared in the neck long before it caused such well-marked symptoms; if the left carotid or subclavian had been examined, a murmur would probably have been heard in them, or along the spinal column posteriorly; nor could an innominatal aneurism displace the heart downwards.

The following case may be advantageously placed in contra-distinction with that just given, as showing that an aortic can be diagnosed from an innominatal aneurism, though it should appear in the position usually occupied by the sac in the latter affection, and in order to secure the accuracy of the report, I give it in the words in which I took the notes and made remarks thereon three years ago.

Ellen Shea, aged 27, admitted to the South Charitable Infirmary, Cork, May, 1849, suffered from palpitations of the heart for the last eight months, which she supposes to have been caused by a fright. About five months ago she noticed, for the first time, a pulsation at the upper part of the sternum; the veins on both sides of the neck became turgid, and her face œdematous. A fortnight before admission to hospital, her ankles were occasionally swollen, and she had a dull, constant pain between the scapulæ, with, once or twice, slight pain down the right arm. Loss of voice at times; this she de-



scribes as a hoarseness coming and going from day to day. Never had dysphagia or dyspnœa; and her health is in general good, with the exception of occasional slight cough.

June 1st.—Respiration easy, and without stridor; veins at the right side of the neck very full. A pulsating tumour, larger than a walnut, is seen above the right sterno-clavicular articulation, occupying the space between the origins of the sterno-mastoid. Both sides of chest equally clear on percussion, except sternal third of the right clavicle, which is dull. Scarcely any respiratory murmur over the upper part of right lung, respiration loud over the lower part of this side, and in the entire of left lung: no râle in any part of the chest; heart's action quick, *bruit de soufflet* with both sounds, heard at the apex, loudest at the junction of the second with third division of sternum; above this point it becomes less distinct, and is replaced by another sound; well-marked thrill is felt over the tumour, and on applying the stethoscope a loud double sound is heard, accompanied by a harsh, rasping, double murmur, loudest immediately below the right sterno-clavicular articulation, but audible over the entire chest, more particularly on the right side. When the stethoscope is passed in the direction of a line drawn across the chest from the right sterno-clavicular articulation to the apex of the heart, the aneurismal murmurs are heard becoming less distinct until we reach about midway between the tumour and heart's apex; at that point it is replaced by another double murmur of a much softer tone, and which becomes more intense as we approach the heart,—this latter double murmur is that before mentioned as accompanying the heart's action.

Here, then, we have two points of pulsation within the chest, each presenting a double sound, and each giving origin to two sets of double murmurs,—one, the aneurismal, harsh; the other the cardiac, soft; pulse 84 in both wrists, and of equal volume; thrill and *bruit* in carotid and subclavian arteries on *both* sides; *double* sound and murmur are heard down the back as low as

the fifth dorsal vertebra, equally loud on both sides of the spine; lower down the *bruit* is still heard, but the sound is *single*. On the 5th of June she complained for the first time of a violent pulsation in the abdomen, accompanied by a feeling of faintness; "the beating in her neck has diminished;" a tumour, not well defined, can be felt in the epigastric region, pulsating violently, and accompanied by a very loud *bruit*; the pressure of the hand in this region causes a feeling of nausea and severe pain in the back. On the nights of the 13th and 14th of June she had great pain down the right arm, and the fingers became livid; since then she has not had an attack of this pain, and the pulsation of the abdominal aorta has diminished.

*Remarks.*—In this case we have a complication of diseases, which renders the diagnosis of the exact position of the aneurism a matter of some difficulty: I allude to the existence of valvular disease with aneurism. An aneurism of the innominata would not cause a *bruit* in the *left* carotid or subclavian, but aortic valve disease would produce murmurs in all the arteries; and thus the complication of valve disease with aneurism deprives us of an important diagnostic sign between aneurisms of the aorta and innominata. There can be but little, if any doubt, that the aortic valves are diseased, and that the aneurism is either of the innominata or arch of the aorta. If it were in the innominata, we would expect to have the following symptoms, viz.:—

1st. Dysphagia, dyspnœa, or stridor; the relation of the innominata to the œsophagus and trachea renders aneurism of that vessel more likely to cause these symptoms than an aneurism of the aorta.

2nd. A marked difference between the radial pulses.

3rd. Pain extending up the right side of the neck and head.

4th. Pain down the right arm would be an early symptom.

In this case, the first three symptoms are absent, and



the last has only occurred a few days past: so far we have negative proof that the aneurism is of the aorta. There is also disease of the aortic valves, hence I would infer, that the aorta itself is diseased; again, the aneurismal *bruit* is heard all over the chest, and there is a point on the sternum where it mixes, as it were, with the valvular *bruit*. The double *bruit* of the aneurism<sup>a</sup> is propagated down the back as low as the fifth dorsal vertebra; and in addition to this, there is a set of symptoms that would lead us to suppose that there was a slight dilatation of the abdominal aorta just below the diaphragm. Are we not then justified in supposing, that in the case before us there is disease of the aortic valves, aneurism of the anterior and superior part of the transverse portion of the arch, and probably a dilatation of the abdominal aorta just below the diaphragm?

This diagnosis, made in opposition to the general opinion regarding the seat of the disease, has been confirmed by the *post mortem* examination, of which I cannot give any more particular account than, that she died in the North Infirmary, Cork, under Dr. Hobart's care, and aneurism of the transverse portion of the arch, with diseased aortic valves, were the morbid appearances; and although the first of the propositions on which this diagnosis was made has been now proved to be untenable, still it shows that aortic can be distinguished from innominatal aneurism, even though the tumour should appear in the position usually occupied by the innominatal sac.

The following conclusions, however erroneous and imperfect they must of necessity be, represent, I believe, the present state of our knowledge of the differential diagnosis of aneurisms of the transverse portion of the arch from those of the arteria innominata; and contain, I trust, "some of the elements of a diagnosis that clinical observation will bring to perfection:"—

<sup>a</sup> Has double murmur been observed in any case of non-aneurismal intra-thoracic tumour? I believe this can be answered in the negative, and may form a most important diagnostic sign between aneurismal and all other kinds of tumours.

In aneurisms of the arteria innominata:—

I.—External tumour is a frequent and early sign, situated generally above the inner third of right clavicle.

II.—Arteries in right arm, and on the right side of neck and head, generally pulsate weaker than those on the left.

III.—Stridulous respiration, cough, dysphagia, alteration in the voice, and dyspnœa, are comparatively rare.

IV.—Pain, œdema, and enlargement of the veins, begin in right arm or the right side of neck and head; they may finally extend to the left side.

V.—Partial loss of motion or sensation in the right arm is a comparatively frequent symptom.

VI.—Dislocation of the clavicle, trachea, or larynx, a comparatively frequent occurrence.

VII.—Alteration in the intensity of the respiratory murmur occurs but very rarely, and then it is weaker in the right lung.

VIII. — Abnormal arterial murmurs in the right carotid or subclavian.

In aneurisms of the transverse portion of the arch:—

I.—External tumour occurs comparatively rarer and later, situated generally at the left side of, or under the sternum.

II.—Arteries in left arm, and on the left side of neck and head, generally pulsate weaker than those on the right.

III.—Stridulous respiration, cough, dysphagia, alteration in the voice, and dyspnœa, are comparatively frequent.

IV.—Pain, œdema, and enlargement of the veins, begin in left arm or the left side of neck and head; they may finally extend to the right side.

V.—Partial loss of motion or sensation in the right arm is a comparatively rare symptom.

VI.—Dislocation of the clavicle, trachea, or larynx, very seldom occurs.

VII.—Alteration in the intensity of the respiratory murmur occurs very frequently, and then it is generally weaker in the left lung.

VIII. — Abnormal arterial murmurs loudest in left carotid or subclavian; heard also along the spinal column posteriorly.



ix.—Pressure on the right carotid and subclavian diminishes or stops the pulsations of the tumour.

ix.—Pressure on the carotid and subclavian, on either side, has but little effect on the pulsations of the tumour.

I purpose, at a future period, considering the differential diagnosis of Aneurism of the Arteria Innominata from Aneurisms of the Carotid, the Subclavian Arteries, &c.; and finally, the treatment that has been applied to effect its cure.

#### NOTE.

The following list of Journals is given in order to prevent those who may continue the investigation of this subject from searching through volumes that have been carefully examined. Among the many periodicals still requiring examination I wish to refer to the *Repertorium der Gesammten Dutchen Medizinish-Chirurgisch Journalistik*, by Neumeister, for 1830, part vii. p. 119; and for 1831, part iii. p. 71; part v. p. 114; and part vi. p. 100, to which I found references for cases of innominata aneurism, but unfortunately these volumes were not in any of the Parisian libraries: to the liberality with which these Institutions are opened to foreigners, and to the kindness of the librarians at the *Faculté de Médecine*, I am indebted for having had the opportunity of collecting materials for this paper.

#### *British and American Journals from 1752 to 1851.*

American Journal of Medical Science.	Medical Gazette.
American Medical Recorder.	Medical Intelligencer.
British and Foreign Medical Review.	Medical Observations and Inquiries.
Dublin Hospital Gazette.	Medical Times.
Dublin Hospital Reports.	Medico-Chirurgical Review.
Dublin Journal of Medical Science.	Medico-Chirurgical Transactions.
Dublin Medical Press.	Provincial Medical and Surgical Journal.
Edinburgh Medical and Surgical Journal.	Quarterly Journal of Foreign Medicine and Surgery.
Edinburgh Monthly Journal of Medical Science.	Transactions of King and Queen's College of Physicians, Ireland.
Guy's Hospital Reports.	Transactions of a Society for the Diffusion of Medical Knowledge.
Lancet.	Transactions of the Medical and Surgical Society of Calcutta.
London Medical Repository.	
Medical and Physical Journal.	
Medical Commentaries.	
Medical Essays and Observations by a Society in Edinburgh.	

#### *Danish, from 1777 to 1818.*

*Acta Regiæ Societatis Medicæ, Hauniensis.*

*French Journals from 1795 to 1851.*

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| Annales de la Chirurgie Française et étrangère.                                    | Journal Générale de Méd. de Chir. et Pharmacie.   |
| Annales de la Société de Médecine de Gand.   | Journal Hebdomadaire des Progrès des Sciences Méd.  |
| Annuaire Médico-Chirurgicale des Hôpitaux de Paris.                                | La Clinique, Annales de Méd. Universelle.   |
| Archives Générales de Médecine.  | L'Examineur Médical.  |
| Bibliothèque de Planque.   | L'Expérience, Journal de Méd. et Chir.  |
| Bulletin de l'Académie Nationale de Médecine.                                      | La Presse Médicale.   |
| Bulletin de la Société Anatomique de Paris.  | L'Union Médicale.   |
| Bulletin des Sciences Médicales.   | Mémoires de l'Académie Nationale de Méd.  |
| Gazette des Hôpitaux.  | Mémoires de la Soc. de Chirurgie de Paris.  |
| Gazette Médicale de Paris.   | Mémoires de la Soc. Méd. d'Observations.  |
| Gazette Médicale de Strasbourg.  | Recueil de Mém. de Méd. de Chir. et de Phar. Militaires.  |
| Journal Analytique de Médecine.  | Répertoire Annuel de Clinique Médico-Chirurgicale.  |
| Journal de la Section de Médecine de la Société Académique de la Loire-Inférieure. | Revue Médicale Française et étrangère.  |
| Journal de Médecine, par M. Beau.  | Thèses pour le Doctorat en Médecine présentée à les Facultés de Médecine de Paris et de Montpellier, depuis 1800. |
| Journal de Médecine et de Chirurgie Pratique.                                      |   |
| Journal des Connaissances Médico-Chirurgical.                                      |   |

*German Journals from 1808 to 1851.*

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| Allgemeines Repertorium der Medicinisch-Chirurgischen Journalistik des Auslandes. | Medicinische Jahrbücher K.K. Oesterreichischen Staats, by Well and Rosas.  |
| Bibliothek der Pratischen Heilkunde, by Hufeland and Himly.                       | Repertorium der Gesammten Dutchen Medizinisch-Chirurgisch Journalistik, by Kleinert and Neumeister.  |
| Jahrbücher der Ausländischen Gesammten Medecin, by Richer and Winter.             | Rheinisch Jahrbücher der Medicin und Chirurgie, by Harles.   |
| Journal der Chirurgie und Augenheilkunde, by Gräfe and Walther.                   | Zeitschrift für die Gesammte Medicin mit besonderer Rücksicht auf Hospital praxis und Ausländische Literatur, by Dieffenbach, Fricke, and Oppenheim. |
| Journal der Practischen Heilkunde, by Hufeland and Osann.                         |  |
| Magazin der Ausländischen Literatur für Heilkunde, by Gerson and Julius.          |  |

*Italian Journals from 1814 to 1851.*

- Annali Universali di Medicina Omodei.  
Giornale per Servire ai Progressi della Patologia e della Terapeutica, Venezia.



ART. XII.—*Notices of the principal Diseases observed on board the Steamers of the Peninsular and Oriental Steam Packet Company, in the Mediterranean and Indian Seas, during a Period of nearly Seven Years.* By CHARLES F. MOORE, M.D., L. R. C. S. I., Surgeon of the “Ripon.”

IN the following pages I purpose to divide my observations into two parts; in the first of which I shall treat of the diseases met with in persons, generally in the upper and middle classes of life, going to or returning from India, China, Southern Europe, Asia Minor, Africa, and Australia, being passengers by the steamers; and in the second, to refer especially to the cases of illness and accident amongst the officers and crews of the several ships of the Peninsular Company to which I have been attached as medical officer.

The first part will thus exhibit a view of the earliest phases of illness experienced by persons entering warm climates, in the cases of those going out, as well as the effects of a prolonged residence in the tropics as seen in persons returning from the East; while the second will afford some criterion as to what diseases Englishmen visiting the localities at which the vessels touch, and the seas which they traverse, are liable.

In the arrangement of my subject I have not divided the outward from the homeward voyages; but I may here observe that, as might be expected, almost all of the chronic cases amongst passengers occurred on the return from India.

The passengers and crews of these ships may be said to represent every rank in society, as well as nearly every nation and race of mankind. Thus, of European nations we have had, besides our own countrymen from every corner of the United Kingdom, French, Russians, Austrians, Germans, Danes, Dutchmen, Swedes and Norwegians, Spaniards, Portuguese, Italians, Swiss, Poles, Greeks, and Turks. Of Asiatics we had Circassians, Persians, Syrians, Turks, Hindoos, Mohammedans from India, Parsees, Jews, Cingalese, Malays, Chinese, and Manilla-

men. America sent us numbers from the United States, British subjects from Canada, and West Indians of many shades of colour. Africa was represented by Egyptians, Turks, Arabs, a Copt or two, Negroes and Somaulis; while even Australia sent two children from the bush, as well as several prosperous settlers from that interesting portion of the British Empire. However, the number of foreigners was on the whole so small when compared to the English, that no results could be arrived at as to their liability to illness or the reverse during their stay with us. For the short period I was in India I found that the African firemen were much affected by the damp cold of the China seas in winter, many of them being attacked with rheumatism at that season. The Egyptians in many instances bore unmistakeable traces of having had ophthalmia, many of them having wholly or partially lost the use of an eye; and as will be seen in the Table, a few cases of ophthalmia occurred on board, in every such instance after a sojourn in Egypt.

The summary, in a tabular form, on the opposite page, shows the total number of cases of illness which occurred in each month, the relative proportion of sick amongst the crews and passengers of the vessels, the prevalent diseases and the average number of persons on board during the respective months, the mortality, the mean temperature observed since 1848, inclusive, on the Alexandrian line, the number of days over which the observations extend, &c.

I must here remark, that the statement of the temperature for the years 1848, 1849, and 1850, is only the mean of the noon observations, whereas that for 1851 gives the mean of observations made every four hours, day and night, on the several passages between England and Alexandria. I added them together, and took the mean of the aggregate, as I found hardly one degree difference in the mean of 1851 and that of the three preceding years, though observed only at noon; thereby showing a remarkable uniformity of temperature, partly to be accounted for by the little variation between the temperature of



Number of Years observed.	Months.	Number of Days at Sea or in Foreign Port.	Average Number of Persons on Board, exclusive of Deck Passengers.	Average Number of Passengers.	Average Number of Crew.	Total Cases of Disease.	Passengers Sick.	Crew Sick.	I. Influenza, Catarrh, Fevers, and Eruptive Fevers.	II. Pneumonia, Bronchitis, Pleuritis, Cynanche Tonsillitis, Phthisis, and Pertussis.	III. Dyspepsia, Constipation, Colic, Gastritis, Diarrhoea, Dysentery, and Cholera.	IV. Hepatitis, Abscess, Hemorrhage, Piles, Plethora, and Diseases of the Heart.	V. Apoplexy, Paralysis, Delirium Tremens and Hydrocephalus.	VI. Gout, Rheumatism, Sciatica, Nephritis, Ralgia, and Lumbago.	VII. Syphilis, and Diseases of the Genitative System of both Sexes.	VIII. Hernia, Accidents, and Ophthalmia.	IX. Other Diseases.	X. Parturition.	Deaths.	Mean Noon Temperature between England and Egypt, since 1848, inclusive.	Mean daily Reading of Barometer, and Day, during 1851. England and Egypt.
Total, .	. . . .	1165	. .	. .	. .	713	429	284	101	73	247	59	16	37	49	50	73	2	9	. .	65.8
Average,	. . . .	19	168	83	86	11	7	4	.	.	.	.	.	.	.	.	.	.	.	.	.
5	January,	68	181	93	88	43	21	22	6	9	8	4	.	4	6	4	2	1	. .	56°	29.92
4	February,	90	163	77	86	41	20	21	9	3	7	4	.	4	5	6	3	.	1	56	29.84
5	March, .	78	181	90	91	41	32	9	13	5	5	5	.	6	2	2	3	.	.	59	29.85
4	April, .	85	207	116	91	67	45	22	16	7	19	5	4	6	1	7	2	.	1	61	29.76
4	May, .	103	121	43	78	37	26	11	8	9	9	1	1	1	3	3	3	.	.	66	29.95
5	June, .	101	125	50	75	47	29	18	3	6	9	9	.	3	3	3	3	.	.	73	30.03
5	July, .	94	166	77	89	60	38	22	10	3	22	3	3	3	4	3	9	.	3	76	29.92
5	August,	74	176	86	90	100	49	51	8	2	70	1	3	2	5	4	5	.	.	77	30.06
6	September,	125	167	81	86	68	45	23	3	7	34	9	2	2	2	4	5	1	2	72	30.00
6	October,	122	178	81	87	60	31	29	5	3	17	5	1	2	2	2	2	.	1	68	29.80
6	November,	121	191	104	87	82	53	29	8	13	27	11	.	3	8	2	10	.	1	65	29.98
6	December,	104	162	90	76	67	40	27	12	6	20	2	2	1	8	8	8	.	.	59	29.93

night and day during a great part of the year in many places, particularly Alexandria and other parts of the Mediterranean much influenced by the sea air. The same remark applies to parts of the Atlantic.

Thus, during a considerable portion of the year, the temperature of the twenty-four hours varies only from one to three degrees in the shade at Alexandria. However, at the changes of season, or perhaps, more correctly, with a change of wind, I have observed a very great alteration in the thermometer. On May 4, 1851, a hot wind<sup>a</sup> blew off shore from south-east, loaded with sand and flies. The thermometer stood at 93° Fahr. at 6, P.M. on the 5th; about 4, A.M. the wind changed to north-west, and the thermometer fell to 63°, and for several days after the mean temperature was about 66°. In Malta, during the winter and spring months, the variations of temperature are often remarkably great, being very high in the sun, and low if exposed to the severe north-easterly wind, which often blows during these periods of the year. In concluding these introductory remarks, I shall merely observe, that the most trying part of the twenty-four hours in the Mediterranean is immediately after sunset; the dew falls then in an almost incredible quantity, and fevers and colds are too often taken by persons neglecting any precaution against the effects of the damp.

The Table gives the mean number of days at sea or in foreign port, on which observations were noted for each month, as 19, which is accounted for by the vessels starting on the 20th of the month on all the Alexandria voyages, and generally occupying three weeks of the next month also on the voyage. Twenty-seven such voyages are included in the Table; six voyages between Southampton and Constantinople, on three of which the vessels continued their course as far as Trebizond and back to Constantinople, making four trips between these

<sup>a</sup> The Khameen, so called from generally continuing fifty days.



ports before returning to England each time. In 1845 two voyages between Ceylon and Hong Kong are included in the Table: it is thus that the average number of days amounts to 19 in each month. The total number of days amounts to 1165, equal to three years and seventy days; during that period 11000 persons, passengers and crews included, travelled by the several ships to which I belonged, and each person was on board for a period of from three days and a half to twenty-eight days. I do not include in this number some thousands of deck passengers who were conveyed by the steamers on the lines between Smyrna, Constantinople, and Trebizond, and some hundreds who were conveyed between Malta and Alexandria.

The mileage performed during the above time, deducting stoppages in foreign ports, exceeded 220,000 nautical miles, and not one life was lost from accident of any kind during that time.

The mortality during the whole period amounted to but 9; a small per-centage, considering that so many of the passengers were invalids, returning, in many cases, with impaired constitutions, the result of a long residence in tropical climates. Of our own crews two died: one of cholera, during a severe epidemic of that disease in Malta in 1850; and the other suddenly of hematemesis while in Alexandria.

This is a small mortality for an average crew of 86 persons, exposed to considerable vicissitudes of climate and the risks of a sea life. We must recollect, however, that the men are selected as healthy and strong; and we have been obliged occasionally to place men in hospital; thus one man was left in Ceylon for dysentery, and died some time after of hepatic abscess. I am not aware of any other fatal case except one, which occurred a fortnight after our arrival in England at the time the cholera was so fatal in Southampton.

Two of the fatal cases amongst the passengers were children of about twelve months old, who died from hydrocephalus returning from India. A third fatal case was a gentleman many

years resident in India and Hong Kong, who died of dysentery of many months' standing, and who was sent to sea as a last resource. Another was a case of paralysis and broken-down constitution, from intemperance and the effects of long residence in tropical climates. A fifth was from long-standing disease of the liver in an old resident in Egypt. The sixth case was that of a gentleman who died of apoplexy, induced partly by over thirty years' residence in India, and partly by hereditary predisposition; while the seventh was a case of general break-up of the constitution, also in an old resident from India.

I have not included in the foregoing one man, a Greek, who had taken a deck passage from Trebizond to Constantinople, and was missed during the passage; many supposed that he had thrown himself overboard, as he had asked a friend of his to take charge of some money, which he requested might be given to his mother, whom he said he thought he should not see again; there were several hundred deck passengers on board at the time, but no one saw him committing suicide.

I shall now proceed to describe the diseases met with amongst the upper and middle classes of society, who were passengers to and from India and the East.

1845.—During September and October, on the line between Ceylon and China by Penang and Singapore, with an average number of not more than 16 passengers first class, I had care of one case of dysentery of long standing, which, as before stated, proved fatal; one case of paralysis, also fatal; one case of asthma in an old naval officer, who died of that disease six years afterwards in the West Indies; and one case of intermittent fever in a boy, seven years old, of English parents, he was a native of Penang, and suffered a monthly attack of the disease. A gentleman who had fever in Calcutta, and left it for the benefit of sea air, suffered much with boils on his voyage to China, where he got better, and remained in tolerably good health for six years, when he got dysentery, and had to leave



for England, where, however, he soon recovered. Besides the foregoing cases, I had some of bilious diarrhœa, which, however, did not continue long severe, yielding to astringents and mild aperients. During September and October, on the passage from China, by Singapore and Penang, to Ceylon, and back to China, the mean noon temperature was 85° Fahr., and the mean barometer, 29·95.

1846. May and June.—No sickness worthy of recording occurred on a voyage from England to Constantinople and Trebizond and back, amongst an average number of 30 passengers, not including several hundred deck passengers conveyed between Constantinople and Trebizond, nor 65 military invalids from Malta to England, of whose cases I have preserved no notes.

The mean noon-day temperature for May was 68°, and the mean noon height of barometer 30·02, from Southampton to Trebizond and back as far as Constantinople; and for June, on the line from Trebizond back to England, the thermometer was 74°, and the barometer 29·85. The latter half of April and the months of May and June are by far the best periods of the year for travellers in this part of the East, being the healthiest and of the most agreeable temperature.

1847.—In February, on the voyage from England to Alexandria, the only cases which occurred were, 1 of syphilis, and 1 of congestion of the liver in an old resident of the West Indies, addicted to intemperance. On the return voyage from Alexandria, in March, I had a severe case of rheumatism from China; 1 of hepatic congestion from India; and also, from the same country, a bad case of ulcers of the leg, and some minor cases.

On a voyage to Alexandria, leaving England on the 20th July, a lady, who had long resided in India, where she latterly had bad health, suffered greatly from sea-sickness and exhaustion: she was for some time insensible, and had several fainting-fits, but improved in health before reaching Alexandria.

1 case of diarrhœa, not severe, occurred; and, returning from Alexandria, a case of sunstroke<sup>a</sup>. A young gentleman, aged 26, returning from Arracan, where he had severe fever, had a recurrence of it, of an intermittent type, while on board. A case of dysentery in a lady, also returning from India. A gentleman, who had resided thirty-six years in India, had sciatica while on board;—I heard since that this gentleman died about two years afterwards in Scotland.

On a passage from England, September 20th, to Alexandria, several (18) cases of constipation occurred amongst our passengers. These are very common cases during the first few days of a sea life,—owing, doubtless, to the change of habits and food. 1 case of colic, 1 of diarrhœa, 1 of asthma, and 1 of rheumatism, occurred on the homeward passage in October.

November 20 to the end of December.—On the voyage to and from Egypt there occurred amongst the passengers,—1 case of lumbago, 2 of dyspepsia, 1 of debility, and 1 of pleurisy in an elderly man who, after serving twenty-one years in the army, had served some three years in the capacity of fireman in a steamer in India!

1848. 20th January to 26th February; voyage to and from Alexandria.—I had charge of one gentleman far advanced in phthisis, going to try the climate of Malta; he was, however, too far gone to be benefited by any change, and shortly after returned to England and died; 3 cases of catarrh and bronchitis; 2 of debility and indigestion. Many cases which I have put under the head of debility are persons who, much weakened by previous illness, or afflicted with great irritability of stomach, suffer greatly from sea-sickness. The principal difficulty I experience in such cases is from the great disinclination of persons so affected to take nourishment. I find, if a person affected with sea-sickness remains in the open air, and takes a small quantity of food,—arrow-root, yolk of egg beaten up, biscuit or rusk and a little cold water,—they generally

<sup>a</sup> Published in the twelfth volume of this Journal, p. 235, 1851.



overcome the sickness, after repeated efforts to retain some such light diet. If they cannot subdue the distressing symptoms of sea-sickness by these means, I usually find that they derive much benefit from draughts of citrate of ammonia taken in a state of effervescence, and combined with hydrocyanic acid, or solution of morphia, or tincture of henbane, according to circumstances. I have tried creasote in different forms of combination, but cannot recommend it. When irritation of the stomach runs into inflammation, I have often had to resort to leeching and vesication. The state of the bowels should be early looked to in these cases. I have read of fatal cases of sea-sickness as having occasionally occurred; but though I have seen some thousands of persons sea-sick, I have never witnessed a single fatal case. Besides the above, 4 cases of diarrhœa, 1 of rheumatism with chronic disease of the heart, and 1 of bruise, occurred amongst our passengers.

Before dismissing the subject of sea-sickness, I think I may here allude to some of the means advised as prophylactic in this serious drawback to sea-travelling. Amongst other means proposed, the following have recently been recommended:—Inspiring and expiring with the rising and falling of the part of the vessel you are in;—endeavouring to hold a tumbler nearly full of water at arm's length, without spilling any of it. I have seen persons occasionally try these means; and though for a time they are amused and the sea-sickness postponed, they generally soon tire, and undergo the penalty of the majority of novices on board ship.

I have just used the word 'novice,' and I think it explains how the majority of sailors overcome the tendency to sea-sickness, namely, by becoming accustomed to the motion of the ship, and so learning to counteract the upsetting effect produced upon the stomach by the unsteadiness of the vessel. Many persons have never been sea-sick in their lives: others, as in the case of Lord Nelson, have never been able to overcome the tendency to it during long service afloat;—nay, I

have known officers become very sea-sick when transferred from their own ship to one in which they have not before sailed. Much, too, depends on the state of health the individual enjoys at the time of going to sea.

I would recommend each person, on first going to sea, to keep on deck as long as possible, never to allow the stomach to remain empty, to occupy the mind with conversation or light reading, and to keep near the centre of the ship or where there is least motion.

20th March to 29th April; England to Egypt and back.—2 cases of rheumatism,—one of them followed by abscess in the areolar tissue beneath the pectoral muscles on the left side,—and 6 cases of diarrhœa, dysentery, enteritis, and dyspepsia, occurred. One gentleman, who had long suffered from dysentery in India, was so extremely reduced that he died the fourth day after landing at Southampton. Besides the foregoing, there was 1 case of debility, and 1 of whitlow, also, amongst the passengers.

20th May to 26th June.—1 case of continued fever; 1 of catarrh; 2 of quinsy; 1 of empyema; 2 of whooping-cough; 1 of dentition; 3 of dyspepsia; 1 of diarrhœa; 2 of colic; 1 of gastro-enteritis; 1 of gout; 1 of hepatitis and jaundice; 1 of boils; 1 of a bruise; and 2 cases of ophthalmia, occurred.

20th July to 26th August.—In the *Indus*, an iron ship, the previous five voyages having been in the Hindostan, built of wood.—5 cases of catarrh and fever; 1 of bronchitis; 10 of indigestion, diarrhœa, and dysentery; and 1 case of incised wound of the abdomen, followed by peritonitis and recovery.

20th September to 30th October; England to Egypt and back.—There were among the passengers, 6 cases of diarrhœa and dysentery; 5 of indigestion and constipation; 2 of debility; 1 of disease of the heart; and two accidents.

20th November to 23rd December.—Cases of passengers of the *Indus*: catarrh or slight fever, 3; diarrhœa and dysentery, 5; aphthæ, 1; constipation, 1; indigestion, 1; hernia, 1; ple-



thora, 1; hemicrania, 1; toothache, 1; ophthalmia, 1; bronchitis, 1; hysteria, 2.

1849. 20th January to 27th February.—Cases of passengers of the Indus: constipation, 3; hepatitis, 1,—this case was combined with phthisis, and the patient died thirty-six hours after leaving Egypt, where he had long been ill; chronic hepatitis, 2. Under this head I have placed the case of a gentleman who had long served in the army in India; while on board he had two attacks of “hepatalgia” combined with asthma; the symptoms were, excruciating pain referred to the liver, with absence of febrile symptoms, his pulse ranging from 70 to 72. The disease is well described in the *Cyclopædia of Practical Medicine* by Dr. Stokes, who there quotes Andral, by whom it was termed hepatalgia or hepatic colic.

I have seen five other cases of what M. Andral has called hepatalgia: one was in a hysterical young lady returning from India; another was in a stewardess, whose robust figure at first led me to expect an inflammatory disease; the other three cases occurred in gentlemen returning to England after long service in the East.

Moderate doses of blue pill and aperients combined with a little soda or potash, followed by tonics, were of use in these cases; and during the attack some relief was afforded by chloroform in a small quantity in one case, and hyoscyamus and ether in others.

Besides the above-mentioned cases: 2 of catarrh; 1 of neuralgia; 3 of accidents; 1 of ulcer; one case of tinea capitis; 1 of debility, and 1 of amenorrhœa, occurred amongst our passengers.

20th March to 23rd April; England to Egypt and back.—The cases were: 1 of catarrh; 1 of asthma; 1 of quinsy; 2 of bronchitis; 1 of pleurisy; 2 of diarrhœa; 3 of dysentery; 1 of paralysis; 2 of rheumatism; 1 of ophthalmia; 1 of psoriasis; 1 of fracture.

1st of May to 6th of June.—On a voyage from Eng-

land to Constantinople and Smyrna, and back to England, with an average of 30 passengers: we had one case of bronchitis; 2 of phthisis. Leaving England for Malta and India: 1 of constipation; 1 of indigestion; 1 of toothache.

20th June to 29th July; England to Egypt and back.—The following cases occurred amongst our passengers: 2 of fever; 1 of aphthæ; 1 of indigestion; 2 of diarrhœa; 1 of stricture; 1 of hydrocephalus, an infant who died the day after it had embarked at Alexandria *en route* from India; 1 of debility and syphilis; 1 of rheumatism.

20th August to 30th of September; England to Egypt and back.—Several passengers were ill: 5 of dyspepsia; 1 of gastritis; 2 of diarrhœa; 2 of cholera; 1 of quinsy; 1 of hydrocephalus, an infant, it also died of this disease *en route* from India; 1 of ophthalmia, an Arab.

20th October to 26th November; England to Egypt and back.—Passengers sick: 3 of catarrh; 1 of hepatitis; 1 of hepatalgia; 2 of indigestion; 1 of diarrhœa; 1 of tabes mesenterica; 1 of rheumatism; 1 of cachexia; 1 of abscess; 1 of hysteria; 1 of orchitis.

29th November to 6th January, 1850; England to Constantinople and back, in the Sultan.—Average number of passengers, 30; 1 case of phthisis occurred, an advanced stage of disease in a lady; she died soon after in India. I may here remark, that a tropical climate, in confirmed phthisis, seems to accelerate a fatal termination. There was also one case of diarrhœa.

1850. 29th January to 9th March.—Average number of passengers, 25; amongst whom the following cases occurred: strumous abscess, 1; and gonorrhœa, 1. The case of struma was that of a young married lady, who had been recommended to leave England for the south of Europe, where she has since remained, and improved in health.

20th March to 23rd April; England to Egypt and back.—Average number of passengers out and home, 124; passengers



ill: fever and catarrh, 4; measles, 5; bronchitis, 2; dyspepsia, 2; gastritis, 1; hemoptysis, 1; hepatalgia, 1; rheumatism, 1; apoplexy, 1,—this case was that of a physician, who had resided thirty years in India, and had been ordered home on account of giddiness and double vision; on the morning of 10th April he was found insensible in his cabin, and died half-an-hour afterwards; he was fifty-four years old;—paralysis, 2, both cases of old residents in India; diarrhœa, 2,—one of these was a gentleman completely broken down in health, but he would go to China, where he soon after died; he had lived hard all his days, and spent many years at sea in all climates;—sarcocele, 1; tumour, 1; sprain, 1; bruise, 2. The five cases of measles occurred on the homeward passage. We had 28 children on board at the time, almost every one of whom had the disease after reaching England.

20th June to 24th July.—Cases of passengers of the *Ripon*, to and from Egypt: catarrh, 2; fever, 1; intermittent fever, 1; quinsy, 1; broken constitution, disease of liver and heart, asthma, &c., 1,—this patient suffered intense pain and dyspnœa at times, had long resided in India, whence he was now hoping to return to England, but died as the *Ripon* entered the Southampton water; he was sixty-six years of age;—dyspepsia, 1; diarrhœa, 1; dysentery, 1; gout, 1; torticollis, 1; otalgia, 1; hysteritis, 1; bruise, 1. The case of pain in the ear just mentioned arose from hardened secretion, which was easily removed by syringing. Some time before I met with a case which had been treated by another surgeon by leeching, &c., with temporary relief; four days after, the case came under my notice at Alexandria, when the gentleman was suffering intense agony. On gently syringing the ear for some time, an insect, apparently a small kind of beetle, was removed, covered with the cerumen. He supposed the insect had got into his ear while coming up the Red Sea. These are very common cases amongst the natives of hot climates, who often sleep out of doors.

20th August to 27th September.—Cases amongst passen-

gers on voyage to and from Egypt: Catarrh and fever, 2; quinsy, 1; dyspepsia, 3; debility, 5; diarrhœa, 9; hepatitis, 1; hemorrhoids, 1; and 3 minor cases.

20th October to 25th November; to Egypt and back.—2 cases of fever, of mild form; 4 of dyspepsia; 1 of constipation; 4 of diarrhœa; 2 of phthisis; 1 of bronchitis; 2 of chronic hepatitis; 3 of dentition and toothache; 1 of cachexia; 4 of debility; 4 of hemorrhoids; 1 of anthrax; 1 of gonorrhœa.

20th December to 20th January, 1851.—Cases amongst the passengers of the Ripon: catarrh, 2; intermittent fever, 1; diarrhœa, 1; chronic hepatitis, 1; debility, 3; neuralgia, 1. This patient, a delicate young lady of strumous diathesis, died about fourteen days after leaving us at Alexandria; she apparently sank exhausted. Delirium tremens, 1; fractured rib, 1; whitlow, 1; and other cases, 7.

1851. 20th February to 25th March; England to Egypt and back.—Cases of passengers: catarrh and slight fever, which on this occasion might be more properly named influenza from its symptoms, &c., 13. It attacked those going out in nearly the same proportion as those returning from the East; the whole of the cases, except one, occurred between Gibraltar and Malta, going out and returning. Quinsy, 2; diarrhœa, 2; tænia, 1; neuralgia, 2; scald, 1.

20th April to 25th May; to Egypt and back.—Cases of passengers: Hong Kong intermittent fever, 1; influenza, 4; influenza and bronchitis, 1; bronchitis, 1; constipation, 2; dyspepsia, 1; chronic hepatitis, 1; varicose ulcer, 1; debility, 1; epilepsy, 1; ophthalmia, 1; orchitis, 1; fever, 1. The case of Hong Kong fever was that of a soldier who had been some time quartered in the island, and was invalided on account of fever. Since leaving, that was, for about five weeks, he had two returns of the fever, each time at the full moon<sup>a</sup>. The principal symptoms he complained of were great pain in the

\* See Dr. Barton's observations on this subject in the twelfth volume of this Journal, p. 343.



head and weakness; quina seemed to benefit him. I had another case of fever, which resembled that just mentioned in coming on also at the full of the moon. The patient had resided in India many years, being an officer in the Company's Service, and had got jungle fever. He was in very low spirits, having lost his wife lately; and a gentleman who had treated him before he came on board feared he should have had delirium tremens. When I saw him on 14th of May his pulse was 112, small; tongue loaded with a brownish-white clammy coating; he felt oppressed; with no particular pain; had anorexia; no symptoms of delirium tremens at present, but a sensation of heaviness in the head, and slight confusion of ideas, in some degree possibly attributable to the pitching of the ship against a head-sea; he was sick, and vomited several times. I gave him some blue-pill and James' powder at night, and a warm aperient next morning. He also had draughts of citrate of ammonia in effervescence four times a day; he now improved steadily, taking an opiate occasionally before the night. On 17th May his pulse was 120, but fuller and stronger; after a warm bath his pulse fell to 94. In a few days he was perfectly well, and continued getting stronger till he left the Ripon at Southampton.

20th June to 19th July.—Cases amongst passengers to Egypt and back: dyspepsia, 1; diarrhœa, 3; dysentery, 1; hepatitis, 1; fistula in perineo, 1; orchitis and other cases, 4; debility, 4; ophthalmia, 1.

20th August to 20th September.—Cases of passengers on a voyage from England to Egypt and back in the Pottinger, with 86 passengers: intermittent fever, 1; phthisis, 4,—invalids from the army and navy at Malta; dyspepsia, 1; constipation, 1; diarrhœa, 10; rheumatism, 2; epilepsy, 1; debility, 1; orchitis, 1.

20th October to 23rd November.—Cases of passengers in the Pottinger, to and from Egypt: fever, 1; quinsy, 1; bronchitis, 1; pneumonia, 1; dyspepsia, 1; diarrhœa, 1; dysentery, 1; chro-

nic hepatitis, 2; abscess, 1; debility, 2; orchitis, 1; gout, 1; dentition, 1; hysteritis, 1; and menorrhagia, 1.

20th December to 19th January, 1852.—Cases of passengers on voyage to Egypt and back, in the Ripon: catarrh and fever, 2; quinsy, 1; phthisis, 1; constipation, 2; diarrhœa, 3; dysentery, 1; chronic hepatitis, 2; rheumatism, 1; ulcer, 1; debility and sea sickness, 3.

I have not included in the foregoing a few cases of insanity which came under my care, and which were returning home from the Mediterranean and India. Two only required constant watching; they were military invalids from Malta, and non-commissioned officers had charge of them.

I shall next speak of the diseases I observed amongst the crews of the several ships of which I had charge on the lines to Egypt, Turkey, and China.

1845. In September and October, between Ceylon and China, one severe case of hemorrhoids, an officer of the ship, came under my care; one seaman had remittent fever; one African fireman had syphilis; one had ophthalmia; and a third, an incised wound of the nose. Amongst the European sailors there were three cases of dysentery; one accident (a contusion); and one case of rheumatism and secondary symptoms; and in an officer of the ship I removed a fibrous tumour from the first phalanx of the great toe.

The dysentery occurred while we were at anchor in Hong Kong Bay, and its spreading through the ship was prevented by getting the three sick men removed to hospital, and cleaning and ventilating the seamen's quarters.

On the voyage from Hong Kong to Ceylon and back, during September and October, there came under my notice: dysentery, 4 cases; intermittent fever, 1; remittent fever, 1; paralysis, 1; hemorrhoids, 1; mild ophthalmia, 1; rheumatism, 2; asthma, 1; debility and boils after fever, 1. I have not included in the above some cases of diarrhœa, which readily yielded to treatment.



1846. May and June, on a voyage from England to Constantinople, and Trebizond and back, I had, amongst a crew of about 65 men: 1 case of rheumatism; 1 of syphilis; 1 of constipation; 1 of fractured rib; 1 of inflamed bursa of the knee; and 1 of inflamed bursa of the elbow-joint, from bruises.

During the greater portion of the year the coasts of Asia Minor and Turkey in Europe are very healthy; but in the latter part of summer, and in the autumn months, ague and various forms of fever are prevalent. At this period, Therapia, a village on the Bosphorus, facing the entrance to the Black Sea, is much resorted to as a retreat from Constantinople, during the hot and comparatively unhealthy season just alluded to. Therapia is pleasantly situated, surrounded by magnificent scenery, and constantly cooled by a northerly wind.

From 20th to 23rd October.—During a severe storm in the English Channel, of a crew of some ninety men, one officer, recently returned from India, had a severe attack of quinsy, another had a rib broken, and two seamen sustained contusions.

During November no cases worth mentioning occurred on a voyage from England to Trebizond, with an average of over sixty first-class passengers, besides many hundred on deck, the latter for three days only at a time on board; and with a crew of about sixty-five men.

In December of the same year, on the return voyage from Trebizond to England with the same crew, nothing worthy of note occurred.

1847. February 20th to March 31st.—On the voyage to and from Alexandria: 1 case of chronic hepatitis; 1 of quinsy; 1 of bronchitis; and 1 of syphilis, occurred amongst the crew.

20th July to 28th August; Voyage from England to Egypt.—A sailor had an attack of colic; a fireman, inflammation of the liver; 3 of the apprentices had influenza; 2 officers of the ship were attacked with dysentery during very hot weather while lying at Alexandria; and from the 8th to the 14th of August, 5 other cases of dysentery occurred amongst the ship's

crew. We left Alexandria on the 11th, after which there were only 2 cases of dysentery on board; however, I have never had so many cases of dysentery while lying at Alexandria as on this occasion. On the passage to Malta we had 3 cases of spasmodic colic.

20th September to 29th October: Voyage from Southampton to Egypt and back.—The following cases occurred amongst the officers and crew of the *Hindustan*: orchitis, 1; abscess, 2; inflammation and erysipelas, 2; accidents, 3; hepatitis, 1; dysentery, 2; ophthalmia, 1.

20th November and the month of December; England to Egypt and back.—Several of our crew suffered from colic in a mild way; in 2 cases the affection of the bowels assumed an inflammatory form, and required depletion and mercury; 3 cases of constipation and indigestion; 5 of influenza; 1 of bronchitis; 1 of quinsy; 1 of orchitis; 1 of syphilitic iritis; 2 of slight accidents.

1848. 20th January to 26th February.—Amongst the crew I had 1 case of abscess; 1 of pleurisy; 1 of plethora, and apparently functional disease of the heart; 1 case of sub-acute gastritis; 2 of syphilis; and 1 of catarrh.

20th March to 29th April.—The following cases occurred amongst our crew during the voyage: 1 case of acute hepatitis; 1 of fracture through the elbow, followed by recovery, and considerable power of flexion and extension; 4 of catarrh and slight fever; 1 of chronic hepatitis; 3 of rheumatism and neuralgia; 1 of erysipelas; and 1 of epilepsy.

20th May to 26th June.—Cases amongst the crew of the *Hindustan*, between England and Egypt and back: 1 officer suffered from acute hepatitis,—he was about 22 years of age, and soon after went to India; he died in 1850, on his return from India, of, as I was told, disease of the lungs;—1 of dysentery; 1 of wound; 1 of ulcer; 1 of cystitis; 1 of rheumatism; 1 of gouty iritis,—an old naval officer, whose fingers were knobby with chalk stones;—1 of orchitis; 1 of catarrh.



20th July to 26th August.—Amongst the crew of the *Indus*:—1 of bronchitis; 1 of apoplexy, apparently induced by excessive heat of engine-room (the case has been published in this Journal<sup>a</sup>);—1 of slight fever; 1 of hernia, reduced by taxis and chloroform, after the ordinary means had failed; 2 cases of dysuria,—arising, apparently, from paralysis of the muscular coat of the bladder, induced by cold and damp when in a state of copious diaphoresis;—1 of abscess.

We enjoyed a comparative immunity from illness on this voyage homewards, as well as when lying for three days at Alexandria, where the cholera was raging, the deaths being from 260 to 300 daily for several days, amongst a population of about 70,000, instead of the average mortality at the same season of the year of about 10 per day. As is shown above, our crew did not suffer from any disease of the alimentary canal; and although our passengers had crossed from Suez to Alexandria by Cairo, only 7 cases of diarrhœa and dysentery occurred amongst them on the voyage home, nor were any of these cases severe. We may in some measure ascribe this to the care taken, both by the Egyptian Government and the officers of the Peninsular and Oriental Company, to prevent, as much as possible, the passengers coming into contact with the population: thus, they did not pass through Cairo, as is usual, but skirted that city on their way to embark on the Nile; they also avoided passing through Alexandria.

I may here observe that, as a general rule, the crews of our ships are not allowed to land in foreign ports. On this occasion we departed a little from this regulation, a party of seamen being landed to carry the young gentleman who received the sabre-wound in the abdomen<sup>b</sup> to the Hotel d'Europe, where he remained under the care of A. Farquhar, Esq., of that city, until sufficiently recovered to proceed to India. Our men did not suffer from their short stay on shore.

Part of the crew of a small steamer, that had recently ar-

<sup>a</sup> New Series, vol. xii. p. 237.

<sup>b</sup> See page 308.

rived out from England, returned with us in the *Indus*. Five of their comrades I objected to being received on board, as they had diarrhœa, and two of them suffered also from severe cramps. They all recovered, and returned from Alexandria by a subsequent steamer. I cannot pass over this without mentioning, that the gentleman (Captain Joy, of the Peninsular and Oriental Company) under whose command these men had come out from England, would not leave any of his men ill behind, but remained with them, looking to their wants, and cheering them with his presence and his abundant good spirits,—running a very considerable risk in staying at Alexandria, where pestilence daily carried off its hundreds, and the majority of the inhabitants locked themselves into their houses, in dread of contagion from their fellow-men.

I do not wish to enter here into the question of Quarantine, but will merely remark, that the two men above alluded to had got on board the ship before I was aware of their symptoms, and, fearing the consequences of taking them on to England, I felt bound to have them conveyed on shore again; yet no cholera appeared amongst us, nor were any of the twelve men, whose comrades we had left behind suffering from choleric symptoms, affected even with diarrhœa. My experience of cholera is, that the contagion must be very concentrated indeed to affect persons not predisposed to it by other causes, as bad food, debility, or exhaustion, bad atmosphere from foul exhalations, damp, &c.

20th September to 30th October.—On this voyage the following cases occurred amongst our crew: 2 of diarrhœa; 1 of dysentery; 2 of catarrh; 1 of ulcer; and 2 of contusions.

20th November to 23rd December.—Crew: 1 of quinsy; 2 of pleurisy; 2 of diarrhœa; 1 of apoplexy; 2 of accidents.

1849. 20th January to 27th February.—Cases amongst the crew: 3 of pneumonia and bronchitis; 1 of psoas abscess; 1 of inflamed bursa; 2 of accidents; 1 of indigestion; 1 of neuralgia.



20th March to 23rd April.—Cases amongst the crew: 1 of fever (typhoid); 1 of bronchitis; 2 of colic; 1 of functional affection of the heart.

May to June 6.—England to Constantinople and back: 2 cases of bronchitis, and 2 of diarrhœa, occurred amongst our crew.

20th June to 29th July; England to Egypt and back.—Of the crew sick, we had: 2 of fever; 1 of quinsy; 2 of colic; 1 of constipation; 1 of diarrhœa; 1 of hemorrhoids; 1 of apoplexy; 1 of orchitis.

When we left England in June, cholera had appeared in some parts of the country, but not in Southampton. We remained at Alexandria from the 5th July until the 14th, during which period very little sickness occurred on board the *Ripon*, and Alexandria was healthy. We were not allowed to communicate with Gibraltar on our outward voyage, as cholera existed in England. We are never allowed to land at Malta or Gibraltar on the voyage home from Egypt, lest we might convey plague,—which has not, so far as I can learn, been known in Egypt for more than nine years. The period of quarantine at Malta is now only three days; but at Gibraltar, owing to the regulations of the Spanish rulers, our Government cannot allow any lazaretto to exist, and unless persons hire a ship they cannot perform quarantine there returning from Egypt. For several years the Spanish Government employed officers to travel between Spain and Manilla, in charge of the mails and despatches, and these gentlemen were always obliged to pass Gibraltar, proceed to England, and there re-embark for Cadiz, in consequence of their quarantine laws! The President of the French Republic has altogether done away with the quarantine establishment at Marseilles, and it would be well if his example were followed, to some extent at least, by Spain; and yet her own trade is affected much more than the comfort of travellers by her absurd quarantine laws.

20th August to 30th September.—The following cases oc-

curred amongst the crew: 1 of quinsy; 1 of pleurisy; 1 of bronchitis; 8 of diarrhœa; several cases not recorded in which the symptoms were not severe; 2 of cholera; 1 of delirium tremens; 1 of fracture.

20th October to 26th November.—Cases amongst crew of the Ripon: 1 of fever; 1 of quinsy; 1 of pleurisy; 1 of pleurodynia; 1 of indigestion; 3 of diarrhœa; 1 of fracture.

29th November to 6th January, 1850.—Sickness of crew: catarrh, 1; pleurisy, 1; pleurodynia, 1; diarrhœa, 3; bruise, 1.

1850. 29th January to 9th March.—Crew sick: 1 of fever; 1 of quinsy; 1 of hemoptysis; 1 of syphilis.

20th March to 23rd April, 1850.—Sick of crew of the Indus: 1 of debility; 1 of dyspepsia; 1 of diarrhœa; 2 of accidents.

20th June to 24th July.—Cases amongst crew of Ripon: 3 of diarrhœa; 1 of cholera. This man died of congestion of the brain five days after he was attacked with cholera; he had diarrhœa for some days before he applied for advice. Cholera was very severe at Malta at the same time; and this case occurred after leaving that port. We had not communicated there, that is, according to quarantine parlance, we were in port and received fresh provisions, but no one from the shore came on board, nor did any of our party go on shore except at the quarantine station. Papers, and all things supposed to be susceptible as fomites, were fumigated before we received them, lest we should take cholera; while everything we sent on shore was fumigated lest we should have conveyed plague from Egypt! We also had some slight cases of diarrhœa which I did not record; one of those entered above as diarrhœa was very severe, attended with cramps, and followed by great debility. One case of sunstroke occurred on the homeward passage; it has been published in this Journal<sup>a</sup>.

20th August to 27th September.—Sickness of crew: dyspepsia, 2; diarrhœa, 13; fistula in ano, 1; sprain, 1; bruise and hemorrhage, 1. This case, which I have named "bruise and

<sup>a</sup> New Series, vol. xii. p. 236.



hemorrhage," occurred thus:—A young man, aged 18, leaped from the jib-boom into the water, while the Ripon was lying in Malta quarantine harbour, a height of about thirty feet; he fell apparently flat on his back, was much stunned by the shock, and was immediately carried by his comrades, several of whom were also bathing, on board; he spat up blood, apparently from the lungs, and bled freely from the nose for a few minutes. On examining his back I found an extensive bruise, with the skin chafed off in some places; and in a few hours several large blisters had risen. The surface healed in a few days, and no bad effects followed.

During August and September cholera continued at Malta; to that circumstance, and the season being hot and oppressive, I attributed the number of cases of diarrhœa and general debility which occurred during the voyage. Some trivial cases of diarrhœa were not noted; as before, we did not communicate, or rather had not *pratiqué* at Malta, out or home.

20th October to 25th November.—Cases of crew: fever, 1; hemoptysis, 1,—a fatal case:—a pale, sickly man, a sailor, had for some months complained of short cough, but had continued on duty until two days before he died; after supper on the 5th November he was seized with spitting of blood, apparently from the lungs, and was dead in a few minutes; no *post mortem* examination was obtained. Diarrhœa, 4 cases; hemorrhoids, 1; hepatitis, 1; rheumatism, 1; ulcer, 1; hydrocele, 1.

20th December, 1850, to 20th January, 1851.—Cases of crew of the Ripon: catarrh, 1; quinsy, 1; fractured rib, 1; fractured rib and pleurisy, 1; indigestion, 3; colic, 1; gout, 1,—a steward, long used to high living, with little exercise.

1851. 20th February to 25th March.—Cases of crew of the Ripon: severe headach, 1; influenza, 2; epistaxis, 1; rheumatism, 2; whitlow, 1.

During this voyage we had prevailing easterly and north-easterly winds while the influenza continued, and very cold

weather at Malta and in the Mediterranean generally. The thermometer on 3rd March, the morning before we reached Malta, was only  $49^{\circ}$ , and the mean temperature for each twenty-four hours from the 2nd to 6th March, inclusive, was only  $52^{\circ}$ ,  $50^{\circ}$ ,  $51^{\circ}$ ,  $52^{\circ}$ , and  $56^{\circ}$  respectively.

20th April to 25th May.—Sickness of crew on voyage to Egypt and back in the Ripon: influenza, 2. One of these cases presented the following symptoms:—J. G., aged 31, a robust seaman, fainted while at the wheel (steering) at 3, 35 o'clock, A. M., on 21st April, the Ripon being about 50 miles S. S. W. of Start Point; the weather foggy, with rain. When I saw him, a few minutes after, his pulse was 54; he felt weak and very cold; I gave him a little ammonia with compound tincture of cardamoms, and got him into his hammock. His pulse soon rose to 76; he stated that he never had any fit, but had once fainted when in cholera. At 8, A. M., his face was flushed; pulse 68; and he complained of stiffness and pain in all his limbs; I gave him solution of tartar emetic, but it did not produce vomiting; he had some arrow-root, and after a few hours' sleep felt better. At night he had some aperient medicine, and I repeated it next morning, but no action was produced on the bowels; however, he passed about four ounces of urine on the morning of the 22nd, not having voided any for more than twenty-four hours previously. The urine was very dark and thick; the glands of his neck were much enlarged, and his throat sore. He complained of oppression of the chest; he was therefore ordered to have a warm plaster applied, and was directed to use a sulphuric acid gargle. It was with much difficulty I got his bowels to act. On the 25th April he returned to duty well. I have constantly remarked that influenza, diarrhœa, and cholera, when epidemic on board ship, show themselves, for the most part, very early in the morning, generally attacking some of the morning watch. Quinsy, 2; constipation, 1; diarrhœa, 3; fistula in ano, 1.



20th June to 19th July.—Cases of crew, England to Egypt and back, in the Ganges: colic, 1; diarrhœa, 2; disease of heart, 1; whitlow, 2; sprain 1; bruises, 2.

20th August to 20th September.—England to Egypt and back, in the Pottinger: Cases of crew sick: constipation, 1; diarrhœa, 15; dysentery, 1; abscess, 1; sprain, 1. An epidemic of diarrhœa commenced on board on the 22nd August; at the time we left Southampton some cases of bowel complaint had occurred there, such as frequently happen in the autumn; as far as I could learn, one person only, a lady, suffered from it before coming on board. On the 21st we had foggy weather, with a westerly wind; the mean temperature, for twenty-four hours, up to noon, being  $67\frac{1}{2}^{\circ}$ , and the mean reading of the barometer, for the same time, being 30.47 inches. August 22, mean temperature,  $73^{\circ}$ . The barometer, which had risen to 31 inches, fell to-day to 30. Weather damp and foggy, wind, light airs from S.W. and W. At 2 this morning I was called to see the boatswain, a tall, powerful man, aged 46; he had great pain in the epigastrium, severe cramps, and constipation; he was placed in warm blankets, well rubbed with dry flannel, and ordered a draught of castor oil and tincture of opium. During the day he had ten stools, and in the evening I gave him a grain of opium, with aromatic confection, which was to be repeated after each liquid stool. The diarrhœa ceased after the first dose, and on the next day he resumed duty. On the 22nd, 9 other cases of diarrhœa occurred, 6 of them being seamen, 2 of whom had cramps and great pain; the remainder did not leave duty.

August 23.—Mean temperature  $73^{\circ}$ , mean barometer 30.03. Wind S.W. and variable; weather thick and misty, off the coast of Galicia and Portugal. 3 other cases of diarrhœa occurred to-day: 1 of a passenger; 2 of the seamen affected yesterday continue ill; 1 of the new cases, a lad of 16, was taken with faintness and severe pain in the epigastrium; he had diffusible stimulants and astringents. In the afternoon a fresh

breeze sprung up from the north, a degree of haziness continuing in the atmosphere.

On 24th August, northerly breeze continued; mean thermometer being  $70^{\circ}$ , and barometer, 30.04. At 1, P. M., we passed Cape St. Vincent, steering a south-easterly course for Gibraltar. To-day several persons complained of pain and uneasiness in the bowels; and three passengers, two infants, one officer, and four of the crew, were attacked with diarrhœa; a fireman suffered from colic; a servant, from faintness and vomiting; a young gentleman, aged 21, from hemorrhage from piles; and another had a fit of epilepsy. Five cases of diarrhœa remained ill from the previous day.

25th August, arrived at Gibraltar, at  $7\frac{1}{2}$  o'clock, A. M. Temperature at noon,  $93^{\circ}$  in the shade; barometer, 29.94. No new cases of diarrhœa occurred to-day. One of the seamen who had diarrhœa passed much blood by stool and by vomiting; he was twenty-six years of age; I gave him gallic acid, after which he had no return of hemorrhage, and soon got quite well.

A steamer arrived at Gibraltar on the 24th, with some cases of diarrhœa on board. She had touched at Cadiz on her way from England and Lisbon; some of her crew were affected, and she reported that the disease was very prevalent at Cadiz when she was there. On reaching Malta I learned that cholera had been severe during August on the coasts of Barbary. From these circumstances, and the fact that those of our number on board the Pottinger who were most exposed to the weather were the persons who chiefly suffered, I attributed the epidemic to atmospheric causes; and, as I find it often remarked that cholera generally commences in India during foggy weather, I was happy the epidemic proved so slight. During the remainder of the voyage to Egypt, and thence back to England, only two cases of diarrhœa occurred, although the temperature was unusually high for the season.

20th October to 23rd November, 1851.—Cases of crew of the Pottinger, to Egypt and back: catarrh, 1; erysipelas, 1;



constipation, 1; disease of heart, 1; sunstroke, 1, in a seaman, aged 52; treatment,—stimulants, aperients, and venesection to ten ounces; recovery; hernia, 1; wound, 1; rheumatism, 1.

20th December to 19th January, 1852.—Cases of crew of the *Ripon*, to Egypt and back: catarrh and slight fever, 4; continued fever, 1; diarrhœa, 1; constipation, 1; plethora, 1; rheumatism, 2; ophthalmia, 1; contusion, 1.

This concludes, in as concise a form as possible, an account of the cases which I have witnessed while acting as surgeon on board the vessels of the Company; and I hope that the following additional remarks will not be thought out of place here. About two years since, the issue of spirits to the seamen and firemen of the Peninsular and Oriental Company's ships was stopped, and, in lieu of it, a small sum of money has since been paid monthly to each man. The crew join with that understanding, and there are always more men to be had than are required, and the greater number employed have been many years in the service. I consider the health of the men has been greatly benefited by the change; at the same time I do not attribute this to the actual withdrawal of spirits from the dietary of each individual, but to the prevention of a state of things produced by the old grog system; for some men, from choice or necessity, gave up their grog to their companions, who too often thereby had more than was good for them, became intoxicated or ill, threw their duty upon others, who, in their turn, became overworked and ill, and so increased our practice certainly, thus producing a state of things anything but satisfactory to those on whose responsibility the efficient working of the ship depended. I have the pleasure to say, that my experience, as to the effects of the change, is fully borne out by that of a gentleman who has been surgeon in one of the largest vessels of the Peninsular and Oriental Company, from the commencement of the line to Alexandria, eleven years since, to the present period; including, of course, the time of

the old grog system, and the present no-grog plan :—I may here mention that grog signifies one part rum, and three parts water. Each man had formerly two gills of rum a day.

I am quite aware that regulations have been in force on board men-of-war to prevent men from bartering their grog to others for “a consideration,” whether that was by doing “a turn” of duty, or for any other matter; the most usual plan was to oblige the men to drink their grog in presence of the officer of the deck, at the time of serving out; but this was objectionable, as men generally prefer having their allowance on leaving duty, or when fatigued.

However, I have never found that the moderate use of fermented liquors impairs the energies of working men; on the contrary, I consider that the men whose duty it is to attend the fires of the steamers would be benefitted by a moderate use of spirits; but it seems impossible to limit that class of men to a given quantity, and so to avoid excess, which, as above described, they used always find means to obtain; it is no doubt better to withdraw grog altogether.

Formerly, when a steamer arrived in a foreign port, many of the men contrived to smuggle spirits on board, notwithstanding every precaution on the part of the officers of the ship; now such a thing is, I believe, hardly thought of; the men seem to lose much of their former thirst for stimulants, and in consequence we find them more orderly, contented, and industrious. I find the captains of the Peninsular and Oriental ships, and other officers with whom I have spoken on this subject, approve of the present system, mainly for the reasons given above. In her Majesty's ships of war the authorities allow half the former allowance of grog, and extras instead of the rest.

In Dr. Carpenter's Prize Essay on Alcoholic Liquors, it is stated, that the porters and boatmen of Constantinople are superior to the same classes in England, and that the former are water drinkers, while the latter drink ale and spirits. With this



statement I cannot agree; I have seen much of the Constantinopolitans, and think the classes referred to fine men, but certainly not superior to our own. The porters are Turks, young men from the mountains of Asia Minor, who live simply, enjoying tobacco, however, to excess, it being very cheap; and they realize by their labour a sufficient sum in a period of often not more than five or ten years, to retire and live in their simple way in the fertile valleys of Asia Minor. As to the boatmen, however, the writer just named is in error, for they are almost wholly Greeks, and indulge freely in the cheap wines which abound in the Levant, and, like the porters, they fully appreciate the use of tobacco.

To return from this digression; I shall now conclude with a recapitulation of the facts deducible from the foregoing observations. The Table given in the commencement of this paper comprises an enumeration of the cases which occurred among our crews and passengers, from the year 1845 (July) to (January) 1852, of which time, however, only 1165 days were spent at sea, or in foreign port.

During this period, 11,000 persons were on board the several ships I have been attached to, not including the large number of deck passengers, whose sojourn with us, as before remarked, seldom exceeded four days.

Of the 11,000 passengers and crews of the different ships 714 were ill; of which number 9 died.

The mean number of persons on board, each voyage, was 169; they spent on the average nineteen days of each month in the ship, and for some part of these nineteen days there were 11 persons ill.

The crew averaged 86 each voyage, of whom 4 were sick during some part of each month. The passengers averaged 83 each month; and during some part of the nineteen days of each month, 7 passengers were ill. It will be seen that nearly double the number of passengers were ill, compared with the

sick of the crew; this was owing to the large number of invalids amongst the former.

The preponderance of diseases of the alimentary canal may be partly accounted for by the number of chronic cases returning from the East.

Influenza, catarrh, and fever, are the second most numerous class of diseases noted in the Table.

Diseases of the organs of respiration are the next in order of frequency, and, after them, diseases of the liver, heart, and circulation.

The column showing the diseases of the generative system of both sexes includes many cases of uterine discharges, and cases of orchitis, which were apparently induced by a prolonged residence in hot climates.

In April, March, and December, influenza and febrile attacks predominated.

In November, January, and May, diseases of the lungs were most numerous.

Diseases of the alimentary canal were most prevalent in August, September, and November.

The liver, heart, and circulation (arteries and veins), were affected principally in November, June, and September.

Apoplexy was most seen in April, July, and August.

Neuralgic and gouty diseases were most common in March and April.

It will be seen, by reference to the Table, that the above are only approximations to a correct estimate of the illness of the seasons, as the number of days at sea varied from 74 to 122 for different months, and the average number of persons on board varied from 121 to 207,—I mean the average for the several years. As shown in the table, two births occurred on board the Ripon, and 9 deaths occurred from 1845 to January, 1852, in the ships to which I was attached.

The mean temperature, as seen in the Table, is taken from



the time of starting from Southampton, hence it is not a fair criterion of the temperature of the Mediterranean, where the temperature, during the greater part of the year, is very high.

In epidemics, from atmospheric causes, the crew first suffer, and of them, the morning watch generally first.

The great majority of diseases of the liver, fevers, and diseases of the nervous system occurs in the passengers returning from India.

The easterly winds in the Mediterranean, as I believe in most parts, at least of the eastern hemisphere, are the most unhealthy. With the north-east wind we there experience cold, dry weather; with the south-east wind, damp and oppressive; when the former wind blows, we find affections of the chest, rheumatism, and neuralgic cases predominate; and when the south-east or Levant wind blows, we experience that colic, and diseases of the alimentary canal generally, as well as rheumatism, prevail.

In dysentery I have found the motion of a ship injurious.

The withdrawal of grog has been attended with beneficial effect amongst our crews, and seamen are not reckless and improvident when they find steady employment held out to them as a just reward for good services. In fine, I may add my opinion that the principle of sailors' homes has been attended with the best results, and tends much to raise the character of the men "that go down to the sea in ships."

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ART. XIII.—*Further Observations on Fractures in the Vicinity of the Ankle-Joint; the Removal of Spiculæ of Bone, &c.* By RICHARD G. H. BUTCHER, F.R.C.S.I., Examiner on Anatomy and Physiology in the Royal College of Surgeons in Ireland, Surgeon to Mercer's Hospital, &c.

IN the last number of this Journal I have recorded and brought before the notice of the profession a number of cases of fracture in the neighbourhood of the ankle-joint, treated by a simple

and efficient method, in every instance securing to the sufferer the integrity of the joint and the normal functions of the limb. In relation to the subject, the operation of tenotomy, as facilitating reduction of the broken bones, has likewise been considered; and, from an impartial review of the facts adduced, certain principles were laid down.

It is well that all practical truths should be fully attested and put most prominently forward; and it is therefore that I now append, in corroboration of the statements which I have advanced, an account of the two following cases, which have recently occurred:—

CASE VII.—*Fracture of the Tibia an inch above the Ankle-Joint, and of the Fibula a little higher up.*

Patrick Duffy, aged 30, a strongly-built, muscular man, by occupation a porter, was admitted into Mercer's Hospital February 8, 1852. When the accident happened he was in the act of descending a very steep flight of stone stairs; and having slipped he lost his balance, and was precipitated from very nearly the top to the bottom. The entire weight of his body came upon the left leg, which was violently twisted under him. The shock he sustained was very great, rendering him quite incapable of speech or motion. On being lifted from the position in which he had fallen and placed upon a bed, after a short time he recovered consciousness, and complained of pain in the leg. It was readily discovered by his friends that the limb was broken, and in an hour after the accident they conveyed him to the hospital. I was summoned immediately to see him, and found the patient somewhat confused, and incapable of giving any account of the accident,—a condition partly resulting from the concussion he had recently sustained, and partly arising from the inebriety consequent upon the ardent spirits which he had taken.

On examining the leg, the tibia was easily detected as being broken about an inch above the ankle-joint, and the



fibula a little higher up. There was a marked depression over the site of the fracture in the fibula; the superior fragment of the tibia projected sharply, owing to the foot and lower fragments being drawn backwards and upwards,—consequently an angle was formed salient forwards by the sharp fragments, which threatened every moment to protrude through the strained integuments; the foot was also greatly everted by the tensive contraction of the peroneal muscles. The amount of deformity, taken altogether, was very considerable; yet, by steady manipulation, the parts were restored to their original position. To counteract the contractile resistance of the great extensor muscles of the heel, it was essential to flex the leg upon the thigh. While the assistant maintained the limb in this position, the foot and lower fragments readily yielded to a force behind, which propelled them forwards, and then, by slight inversion of the foot, the action of the peroneal muscles was more than counteracted. In this favourable posture the limb was then retained in the fracture-box,—the advantages of which I have so strongly advocated in my former communication. By a reference to the mode of adjustment, it will at once be seen that the injured part was left uncovered, exposed for local applications,—a condition taken advantage of in this instance, as it was essential to reduce the exalted temperature by the frequent application of cold evaporating lotions. Immediately after the limb was adjusted the patient fell into a sound sleep, from which he awoke perfectly conscious.

In three hours after his admission and the doing-up of the fracture I visited him again, to make sure that no undue pressure was exerted upon the limb, and at this time he expressed himself as perfectly free from pain or spasm, and, to use his own words, “most comfortable.”

February 9th. The patient has had no pain or spasms in the limb, yet there is a general nervousness present; he has been vigilant and restless during the night, with tremor of the hands; the tongue is also tremulous, and coated with a tena-

cious, yellowish paste. From the irregular habits of the man,—his partaking each day of large quantities of spirituous drinks,—an attack of delirium tremens was to be apprehended. I at once placed him on the opium treatment,—a practice that proved so beneficial in many instances which I have already recorded.

10th. The vigilance and restlessness have considerably subsided, and the patient had some sleep. The limb remains quite free from startings and pain, and lies as equally supported as when the apparatus was first adjusted; he is allowed nourishing food, and ordered to continue the opium.

13th. The patient enjoyed uninterrupted, refreshing sleep during the past two nights; all restlessness and tremulous motions of the tongue and hands are removed; the limb does not require to be stirred,—it lies in excellent position. He was ordered a warm rhubarb draught, which freed the bowels most desirably: had it been administered earlier, it would have only tended to depress still further the nervous system, and usher into existence that condition most to be apprehended and dreaded. Enemata are not at all applicable in those cases at first, from the disturbance necessarily occasioned in their administration: the slightest motion of the broken fragments tends to excitation of that spasm which, when once located in the muscles, becomes most embarrassing to the surgeon.

20th. Re-adjusted the cushions, bandages, &c.; the broken fragments lie in the best position towards each other; swelling entirely gone down; the opium to be omitted.

28th. Re-applied splints, fracture-box, &c.

March 9th. Union quite firm; put up the limb as before.

18th. On careful examination, the union is found to be quite solid; rolled the limb, and placed it resting on its posterior surface, evenly supported on a pillow with side-splints and foot-board; the fracture-box not required any longer.

21st. Removed splints altogether, and permitted the patient to move about with the assistance of crutches.



23rd. The motions of the ankle-joint are rapidly being regained; the amount of callus thrown out, owing to the close apposition of the broken bones from the first, is very limited, and will not at all interfere with the perfect functions of the part. On this day the patient was dismissed from the hospital, without the least deformity of the limb.

CASE VIII.—*Comminuted Fracture of the Tibia and Fibula immediately above the Ankle-Joint, from direct violence.*

David Dixon, aged thirty-five years, a powerful, muscular man, a sailor by occupation, was admitted under my care into Mercer's Hospital, February 8, 1852. He was conveyed immediately from his ship, after suffering a very severe crushing accident; while assisting in the lowering of a large anchor, his right leg was caught between it and the side of the vessel with a force sufficient to break both bones above the ankle. On manipulation, I readily ascertained that the tibia was broken in several pieces an inch above the joint, and the fibula also comminuted, corresponding to the same position. The integuments over the site of fracture were greatly contused and discoloured from the rupture of small vessels and the effusion of blood freely through the areolar tissue for several inches up and down the limb. After experiencing considerable difficulty in overcoming the violent spasmodic action of the extensor muscles, I effected reduction of the broken bones; during this procedure the limb was flexed, and steadily held so by an assistant; the foot had likewise to be maintained inwards, owing to the distortion occasioned outwards by the spastic traction of the peroneal muscles, their support being lost. By the force applied as I have described, a suitable position was obtained, and the limb placed in the fracture-box, which, together with the side-splints, cushions, foot-board, and bandages, were adjusted with the most careful precision to complete that object.

February 15th. In this case no constitutional disturbance presented in the early management of it, the patient being a healthy

man and of regular habits; but from the perfect development of the muscular system, and the difficulties met with owing to this perfection, towards the reduction of the broken bones, I deemed it advisable to narcotize its irritability by large doses of opium. With this intention, a grain of opium was given every third hour for the first four-and-twenty, and with the best results; it was given in smaller doses after, and on the 17th was discontinued entirely. The mechanical means employed did not require any interference since applied; and cloths steeped in a cold evaporating wash were occasionally placed over the crushed part, so as to reduce the temperature and moderate the inflammation.

25th. All the extravasated blood has been removed; and from the first there was very little more inflammation present than was essential to the cure. Lymph is freely thrown out, matting together the fragments of bone, which before were moveable: there has been no necessity for disturbing the limb since its first adjustment.

27th. On this day I changed the splints, bandages, &c., for the first time since the patient's admission.

March 7th. All superficial swelling and discolouration nearly gone; the lymph effused has become firm, rendering the small pieces of bone belonging to both the tibia and fibula immoveable.

12th. I re-adjusted fracture-box, splints, &c.; there has been no stripping of the heel, neither was there pain referred to this region, so evenly did the cushions offer support.

22nd. The union between the broken bones is now quite solid, and the bond of connexion has not encroached on the ankle so as to obstruct in any degree the full flexion of the joint; neither is there the least eversion of the foot; and the mortice formed between the internal and external malleolus for the reception of the astragalus is not widened.

In a few days after this the patient was dismissed from the hospital, being able, by the assistance of a stick, to support the



weight of the body upon the limb, and to move without the least halt.

It is unnecessary, after the foregoing remarks, to offer any further comment on the successful issue of these cases<sup>a</sup>.

#### ON THE REMOVAL OF SPICULÆ OF BONE IN COMMINUTED FRACTURE.

As to the time in which the removal of spiculæ of bone is called for in comminuted fracture, the case marked No. iv., in my former paper, offers a good illustration. It is there stated: "The deformity of the leg was very great, the fibula being broken in pieces, from about an inch above the extremity of the malleolus, for at least two inches; *one piece* in particular, a large one, was forced away from between the upper and lower fragments of the bone, and thrust under the skin on the anterior aspect of the leg, and a little above the joint, thus leaving a great depression, corresponding to the gap in the continuity of the lower part of the shaft of the bone." On the adjustment of the limb every effort was made, consistent with correct practice, to restore to position this detached piece of the fibula, but all to no effect, it projected sharply under the skin, and threatened several times during the treatment to ulcerate its way out; to prevent so unfavourable an occurrence every precaution was adopted; the part was left exposed, the integuments relaxed, and, above all, handling of the part was prohibited; my great anxiety being to stay the protrusion of the bone until the broken-up parts were consolidated and repaired, and so avert the production of compound fracture, a result greatly to be dreaded, more particularly so in this case, owing to the joint being implicated in the fracture.

On the 28th of December, 1851, the patient referred to was dismissed from the hospital, with the broken leg cured;

<sup>a</sup> There is one particular in the treatment which has been omitted in the former paper, namely, that in every case the lower third of the thigh, as well as the two upper thirds of the leg, was enveloped by the bandage external to the fracture-box.

and with instructions to return immediately, if the projecting piece of bone occasioned any annoyance. He was re-admitted on the 9th of February, 1852, ulceration having attacked the integuments and exposed the bone.

On examination it was found that the osseous matter, which was liberally exuded from the broken tibia, readily united with the end of the displaced piece of the fibula which had been permanently retained, and nourished chiefly by this ingrafting. The prominent part of the spicula was not in the least degree rounded off, but remained sharp, as the moment after the accident. I cut down upon it by an incision an inch and a half long; freed the surrounding parts adherent to it, and then, with a narrow-bladed forceps, cut off the bone at the line of its attachment to the tibia. In effecting this object the anterior tibial artery had to be divided,—the incision was enlarged up and down, and the vessel ligatured above and below. The wound was allowed to heal by granulation, with the object of implanting a new part, so as to guard against straining of the integuments above the joint, a position subjected to so much motion. After this operation the patient made a rapid recovery, and has been dismissed from the hospital, able to walk perfectly well.

In those cases where the spicula becomes attached by one end to the uniting callus of the fractured bones, as in the instance just recorded, the sharp extremity will not be rounded off, and it may lie under the integuments for years without producing ulceration, if no undue pressure be exerted over it from without. The following case affords a good illustration.

A man named Patrick Walsh, aged sixty-six years, was admitted into Mercer's Hospital, December 20th, 1850. Having been thrown down by a car in the street, he was slightly contused over the chest and limbs; but he directed my attention to an old fracture. His right leg was broken thirty-five years before, when engaged in the amusement of kicking foot-ball;—the site and outline of the fracture was nearly as evident as if it had



been a recent injury ; the leg was an inch shorter than the sound one ; the tibia was split from about its centre down into the lower third, the line of fracture being very oblique and traversing from without inwards, and the fibula was broken two-and-a-half inches from the extremity of the malleolus. The tibia was arched in front, and the lower fragment of the fibula directed forwards and inwards, its upper fragment also was inclined forwards, and considerably overlapped the lower ; the edge of it was quite *sharp* beneath the skin, threatening every moment to protrude, yet, by the patient carefully guarding this part from pressure, it had continued there with impunity for so long a time.

When small spiculæ are completely isolated, they may act as foreign bodies and be cast out, but more frequently they are capable of contributing to the repair of the fracture, or, as sometimes occurs, they are surrounded each by a lymph cyst, which in many instances proves the medium of thus removal by absorption.

There is one more point of interest in the Case No. iv., in reference to the fact that the gap, at least an inch and a half in extent between the upper and lower fragments of the fibula, and created by the large piece of its shaft “ thrust in front and above the joint,” was afterwards repaired and filled up by a *firm osseous piece*. Now, this is an important practical point, if a portion of the shaft of a bone be removed by judicious management, a perfect osseous substitute may be procured. This fact is at variance with the doctrine inculcated by Sir A. Cooper, who maintained, that for the union of fractures it was essential that the broken bones should be kept in contact. “ The first reason which I should state,” says Sir A. Cooper<sup>a</sup>, “ for the want of union in fractures of the neck of the thigh-bone is the want of proper apposition of the bones ; for if the broken extremities be in any part of the body kept asunder,

<sup>a</sup> Surgical Essays, vol. ii. p. 30.

ossific union is prevented." Again, in support of the axiom which I have laid down, I beg to refer to some cases recorded in the twelfth volume of the Medico-Chirurgical Transactions, page 167, one of which clearly proves the possibility of bony union after the removal of three inches of the tibia and the consequent separation of the bones to two inches. In Mr. Heaviside's Museum there were instances of extensive bony deposits between fractured surfaces that were not in apposition.

I shall conclude by a quotation from Rokitansky. In his Pathological Anatomy, when speaking of the repair of injuries of bone complicated with *loss* of substance, he writes: "Under favourable circumstances it is effected by the first intention, and the osseous mass, exuded from the surfaces of the wound in the bone, serves not merely to re-unite the bone, but also to supply the place of the part which has been lost."

ART. XIV.—*On the Mechanism of the Acoustic Phenomena of the Circulation of the Blood, with an Exposition of a new Element in the Causation of the First Sound of the Heart.* By ARTHUR LEARED, M. B. T. C. D., L. R. C. S. I.; Physician to the Oulart Dispensary, Wexford; Ex-Clinical Assistant to the Meath Hospital, Dublin; late Resident Physician's Assistant, Hospital for Consumption and Diseases of the Chest, Brompton, London, &c.

FEW subjects have more attracted the attention of physiologists, ever since the splendid accession to physical diagnosis in the discovery of auscultation by Laennec, than that of the acoustic phenomena of the circulatory apparatus. It is one, the details of which have been repeatedly investigated by many able and competent inquirers; and it is, therefore, with no affected hesitation that I proceed to explain my own convictions as regards certain points in connexion with it, differing as they do from the ideas at present current concerning them.

That the greatest difference of opinion exists amongst the



profession on this important subject is, however, undeniable. This is a proof that, in reference to it, our knowledge is still incomplete, and will at least form an excuse for a fresh attempt to add to it.

If we take, for example, the first sound of the heart, how many conflicting and widely different opinions have been advanced to account for it? How much has been written to uphold certain ingenious theories of its production? Under what prestige have not some of the investigations in reference to it been conducted, and their results given to the world?—and yet how far from settled do we not still find the subject? There is confessedly indicated by this striking want of unanimity, something radically defective in all the attempts hitherto made to explain the phenomenon,—something still unwarranted by rigid induction.

Long impressed with this feeling, I commenced my investigations by performing a number of experiments on animals in reference to the causes of the sounds of the heart. My object was chiefly to repeat those already published, with the view of testing them personally; and no part of the explanations of them now offered in this paper was preconceived at the time I approached the task<sup>a</sup>.

But before bringing forward the conclusions I have arrived at, I think it will be requisite, especially as regards the sounds of the heart, to take a rapid glance at the explanations of them given by eminent living writers, and most generally received in these countries,—assigning my reasons where I do not acquiesce in them, and pointing out what I conceive has been established. Without taking such a course, I feel that, in an

<sup>a</sup> The subjects of these experiments, with the details of which I will not trouble the reader, were dogs, some of them of large size. Not being able to procure any woorara, I used for their destruction hydrocyanic acid of about seven times the strength of that of the Dublin Pharmacopœia, afterwards employing artificial respiration. In two instances I substituted chloroform inhalations, so as to produce profound anæsthesia, and performed vivisections of the animals, but I do not think any advantage was derived from the plan.

attempt like the present, I should run the risk of an apparent disregard for such high authorities as I shall presently quote. It is by no means my intention, however, to examine the merits of the many theories that have been advanced to account for these phenomena, nor would it suit the limits I propose to myself.

The London Committee of the British Association appointed to investigate this subject, of which Dr. C. B. Williams was a member, as the result of their experimental researches, adopted the conclusion:—"That the first sound of the heart, as heard in the chest, is generally complex in its nature, consisting of one constant or essential sound, and one perceptible only under certain circumstances. This constant element of the first sound may be considered as intrinsic, appearing to depend on the sudden transition of the ventricles from a state of flaccidity in diastole, to one of extreme tension in systole; while the extrinsic or subsidiary sound, which in a variety of circumstances contributes largely to the first sound, arises from the impulse of the heart against the parietes, chiefly of the thorax"<sup>a</sup>.

I shall now briefly examine the data upon which this summary rests. The muscular theory of the production of the first sound appears to be founded on the observations previously made by Dr. Wollaston with regard to the production of sound during contraction of other portions of the muscular system<sup>b</sup>. Based by an easy analogy upon this, it certainly presents an inviting aspect, and it would, I think, be erroneous to contend that the sound is not derived in part from this source. If, with Andral, we regard the first sound as of a still more complex nature, this may easily be conceded; neither do I offer any objection to the "subsidiary sound" of the Committee. But that

<sup>a</sup> First Report of the London Committee of the British Scientific Association on the Motions and Sounds of the Heart. Read at the meeting at Bristol in 1836. *Vide* Pathology and Diagnosis of Diseases of the Chest, by C. J. B. Williams, M. D. Fourth Ed., p. 310.

<sup>b</sup> Philosophical Transactions, 1810.



the chief element of the first sound is to be sought for in muscular contraction, as stated by them, I conceive to be open to many palpable objections, some of which I subjoin.

First, The diversity of cause assigned for the production of the two sounds of the heart, by which the first is referred to the solid parietes, and the second, as it usually is by the advocates of this view, to the closure of membranous valves,—while in many cases their almost perfect similarity indicates no such distinction of origin,—offers, I think, strong presumptive evidence against this explanation of the first sound.

Secondly, The occurrence of closely allied sounds in certain aneurismal sacs clearly points to a parity of reasoning as regards their principal causation.

And thirdly, The easy transition of the normal first sound into *bruit de soufflet*, which always bears relation to the dynamic condition of the blood.

To meet Dr. Williams, however, on his own ground, it will be necessary to quote from his experiments, selecting only those portions of them that bear upon the questions at issue, and which have been put forward by himself to sustain the theory, that the muscular is the chief element of the first sound, as well as to disprove the location of this sound at a point which I purpose advocating as that of its maximum intensity<sup>a</sup>. He says,—“ That the first sound is produced by the muscular contraction itself may be considered as proved by Obs. 8 and 9 of Exp. 1; in which every other possible source of sound was excluded, and the first sound still accompanied the systolic action of the ventricles.” The observations alluded to are as follows:—“ I pushed my finger through the mitral orifice into the left ventricle, and pressed on the right, so as to prevent the influx of blood into either ventricle; the ventricles continued to contract strongly (especially when irritated by the

<sup>a</sup> *Op. cit.* p. 303, *et seq.* I quote from Dr. Williams' own researches, as I have not the Report of the Committee before me; but he states, “ there is little in it not previously ascertained in my experiments.”

nail of the finger in the left), and the first sound was still distinct, but not so clear as when the ventricles contracted on their blood. The same phenomena were observed when both the arteries were severed from the heart."

He has also cited the above, as well as some other observations, to prove that the first sound cannot be caused by the rush of blood into the great arteries. The argument used is so obvious as not to require further mention; and I will now proceed to explain my reasons for dissenting from both positions.

The inference drawn from the above, *par voie d'exclusion*, by Dr. Williams is, that as the first sound remained after the abstraction of all other sources of it but the muscular, that alone must be its essential cause. Thus it is stated, that after the arrest of the influx of blood into the ventricles, the first sound continued, being still distinct, *but not so clear as when the ventricles contracted on their blood*. Let us, however, examine more closely the data employed.

In my own experiments on dogs, I found that the stethoscope, when applied to the exposed heart, elicited sounds even when the action of the organ was considerably impaired, and it was almost empty of blood, which might easily be mistaken—due allowance being made for unfavourable circumstances—for its normal first sound. This I noticed at times, when I should have conceived that the latter had become quite inaudible; I further ascertained that even after the contractions had quite ceased, by alternate pressure with my finger, so as to indent the ventricle while the stethoscope was still applied to it, the effect produced on the ear was very similar to that caused by the natural contractions. How are these anomalies to be explained? Every one familiar with the stethoscope is aware how great an obstacle the slightest contact of extraneous bodies in motion presents to the use of it. Even the friction of the hair against the ear-piece is often the cause of interruption, and the slightest movement of a finger on the cylinder is sufficient to prevent an accurate diagnosis, so exaggerated are all sounds



which are the result of contact with the instrument, compared with those which form the subject of investigation, and so different are the relations which they bear to each other. Now what happens in the cases to which I have referred, and what are the conditions present? Instead of being applied to a plane surface comparatively at rest, as in the examination of the heart in the living body, the instrument must be adjusted to the convex surface of the naked organ in rapid motion. From the uncertain contact thus obtained, and which it will be found almost impossible to rectify, pulses will be generated in the air contained in the stethoscope, and a twofold source of error will be induced,—first, from the motion of the organ causing by friction sonorous vibrations in the instrument itself; and, secondly, sonorous atmospheric commotions, owing to imperfect adjustment,—one or both of these being in constant operation, however delicately the manipulation may be conducted. Sounds thus developed, and conveyed to the ear by the stethoscope, being concentrated by its peculiar construction, and necessarily synchronous with the real first sound of the heart, become not only perfectly amalgamated with the latter if present, but most likely to be mistaken for it if absent. To this the low and impulsive character of both tends to contribute, whilst the effect of their separation is, from the same cause, rendered less appreciable.

We have, however, the testimony of Dr. Williams himself, while maintaining that the first sound still continued after the ingress of blood into the ventricles was prevented, that it was “*not so clear as when the ventricles contracted on their blood.*” The plain inference from this, and one that bears exactly on the point in question, is, that although a sound was still heard, it was not unattended with marked alteration. These are my reasons for distrusting the results of observations on the exposed and contracting hearts of animals, impressions not likely to be diminished from their having been undertaken with a view to explaining the sound by a preconceived idea, and then prov-

ing it by an *experimentum crucis*. I must, however, add, with much respect for the high authority of Dr. Williams and the Committee, that as my objections are also the result of actual experiment, I conceive I have advanced sufficient to cause others to hesitate in adopting their apparently insurmountable arguments, and to justify me in considering that the first sound of the heart has not been proved to depend essentially, as stated by them, on muscular contraction.

The explanation of the first sound originally proposed by Dr. Billing, which refers it to the tympanic closure of the mitral and tricuspid curtains, appears at least more specious than that just detailed. The analogy between it and the less disputed origin of the second sound from another set of valves, instead of attributing it to a cause of extreme diversity, certainly gives it this aspect. When fairly examined, its adoption, I think, nevertheless presents some fatal difficulties. Though designed alike to prevent the reflux of blood, the position and mode of action of the auriculo-ventricular valves are widely different from those of the arterial outlets. The former are contained within dense walls, yielding with the closure of the valves, which are chiefly acted upon by a vital mechanism. The latter, placed at the basis of fluid columns, inclosed within membranous parietes, are influenced by a re-action purely physical. The angles which the respective segments of each present when closed are also very unlike. That great diversity should exist in the capabilities of both these valves for producing and transmitting sounds is, therefore, what is only to be looked for. But that the functions of both sets of valves are capable of being performed without the occurrence of sounds, I think highly probable. And granting, as I do, that in certain cases those of the auriculo-ventricular orifices produce sounds, an insuperable objection that has been justly urged against their being the essential cause of the first sound remains to be stated. The closure of these valves occurring at the very commencement of the systole, a sound thus produced must be as-



signed to corresponding limits. We know, however, that the first sound is not abrupt, that it may be regarded as coincident with the duration of the systole, and hence are led to seek for some explanation of it in which this indication is not to be overlooked.

Dr. Carlile, in a paper published in the former series of this Journal, chiefly in reference to the motions of the heart, was the first to attribute the first sound to the ventricular outlets. He attempts, however, no explanation, and his description of it is very short, being wholly comprised in the following passage:—"There can be no doubt that, although Laennec was wrong in ascribing the first sound to the contraction of the muscles of the heart, he is right in connecting it with the ventricular systole, as these two correspond in duration, and the former is satisfactorily accounted for by the rush of blood into the great vessels which the latter produces"<sup>a</sup>. Where ingenuity has been so much taxed, and, in fact, overstrained, in attributing this sound to almost every possible part and function of the organ, it would be surprising if that of the motion of the blood from its cavities into their discharging tubes had not previously been advanced. What is the proximate cause of the sound, however, Dr. Carlile, as we have seen, leaves completely in doubt; and although stated to be satisfactorily accounted for, his theory, in consequence, appears to have been very partially received. It has more recently been revived by Dr. Bellingham, who assigns friction as the immediate cause of the sound, an opinion to which, for several reasons, I cannot subscribe. The explanation of it that I have to offer is, so far as I know, new,—the principles upon which it is founded not having been referred to by any writer with whose works I am acquainted. But before entering on the subject, it will be necessary to present the reader with a statement of my views of the general acoustic phenomena of the circulation of the blood.

<sup>a</sup> See the First Series of this Journal, vol. iv. p. 105.

Regarded as a whole, the sounds observed in the circulatory system may be divided into two classes, which I will designate as—

1st. Those referrible to the circulating apparatus.

2nd. Those referrible to the circulating fluid:—*a.* Current Sounds. *b.* Concussion Sounds.

Under the first head may be placed the sound of muscular contraction, that of the impulse of the apex against the parietes, and any other causes which may be advanced as subsidiary sources of sound.

In the second class the first division embraces the various and appropriately-named *bruits* of Laennec. They are all abnormal, and have been observed in the heart, in the arteries of a certain size of perhaps all parts of the body, especially when affected by aneurism, and in certain venous trunks and sinuses. They are often associated with an appreciable tremor termed by the same author *frémissement*. The physical law of their production, although identical in all, is often dependent on conditions that are very dissimilar.

The second division of this class includes the natural sounds of the heart, and the sounds heard in certain aneurisms. Their production is dependent on the same cause,—the direct influence of the ventricular action within certain limits, and they are severally convertible into those of the first division of the same class.

It is not my intention, nor is it at all necessary to enter upon a full consideration of the mechanism of *bruit de soufflet*. This task has already been ably performed by Dr. Corrigan, in the former series of this Journal, and subsequently by Dr. Williams, in conjunction with the Committee of the British Association. The points at issue between these eminent observers will, however, require attention, and I shall venture to add a few experimental observations made by myself on the subject. In the opinion of Dr. Corrigan, the murmurs are not formed at the point of obstruction to the current in a tube, but by the vibration of the



wall beyond, from the rippling motion of the fluid caused by diminished tension, while, according to Dr. Williams, any condition of the wall of the tube beyond the obstructing point is not essential to the production of sound. I have repeated some of the experiments advanced by both these gentlemen in support of their respective positions, and the result induces me to adopt the view of Dr. Williams. It explains also, I think, better than the other, the occurrences of *bruit de soufflet* in the interior of the heart and in aneurisms. Dr. Corrigan has particularly dwelt on the association of *bruit de soufflet* with *frémissement*. In connexion with his idea,—that they both originate in the parietes,—he endeavours to show, that they are but manifestations of the same cause, vibration, through different senses, hearing and touch. If that were really the case, we should expect to find a constant relation between them, palpable to both senses, which, according to Dr. Corrigan's own experiment, as we shall presently see, does not exist. For the elastic tube used in former experiments he substituted one of block tin, beaten in at a certain point with a blow of a hammer. Water being now caused to pass through it, a loud *bruit de soufflet* was heard between the narrowed part and the discharging orifice, but no *frémissement* as when the elastic tube was employed. He explains it thus:—"The discharging orifice being left of full size, the fluid passing from the narrowed portion of the tube tended, in rushing towards the discharging orifice, to leave vacuums at the sides; the particles, somewhat removed out of the most rapid part of the stream, whirled round to supply these vacuums." So far I consider the explanation correct, and that thus the *bruit* can be accounted for, as owing to the commotion in the water itself, aided by its minor currents striking against the tubes. But he adds: "The vibratory motion of the fluid in this portion of the tube communicated its impulses to the sides of the tube, threw them into vibrations, and the sound was the result. No *frémissement* could be felt, because in this experiment the vibrations are too mi-

nute to be detected by the sense of touch. If this explanation be correct, anything that would stop the vibratory movement of the tube ought to stop the *bruit de soufflet*, and such is the case. The discharging orifice of the tube was now narrowed to a size less than the constricted part. On permitting the fluid to run down the tube, and issue from the discharging orifice, which it did to a distance of several feet with considerable force, no sound whatever was heard in the portion of the tube where before the sound was so loud. There was no sound now, because, from the discharging orifice being narrower, the portion of the tube between the constricted part and the discharging orifice was brought to a state similar to that of the intestine when tensely distended, described in the experiment, page 193; the sides of the tube could no longer vibrate, and there was, consequently, no sound"<sup>a</sup>. In both these experiments the change from unequal into equable motion in the water in the tubes, caused by increased tension, appears to me sufficient to account for the cessation of the *bruits* without having reference to the state of the tubes, since, if the vibrations of the tubes be regarded as the sole cause of the sounds, we should naturally look for a feeble sound, if for any, in the case in which the vibrations were too minute to be perceptible to the touch, and for a very loud sound in the case in which they were so marked as to cause the sensation of *frémissement*. But the reverse of this appears to have been the case. I do not overlook the influence of the tube or of the chamber containing the fluid, in conducting, modifying, and probably increasing sound; but I maintain that true *bruit de soufflet* can be produced in liquids independently of either. In proof of which I subjoin the following experiment<sup>b</sup>:—

- <sup>a</sup> Dublin Journal of Medical Science, First Series, vol. x. p. 195.

<sup>b</sup> I purposely abstain from bringing into discussion any considerations founded on the abstruse nature of sound, but as there exists a real analogy between sounds produced in tubes, whether by water or air, I cite the following passage from the article "Acoustics," Encyclopædia Britannica, Seventh Edition, in support of the views



To the neck of an India rubber bottle, a tube of the same material, two feet long, was adapted by means of a short, thin one of brass. With an aperture in the side of the bottle, a brass box, provided with a valve opening inwards, was connected; the other extremity of the box being attached to another shorter, but wider, caoutchouc tube, the communication through this and the box, to the interior of the bottle, being wider at every point than that through the first-mentioned tubes. The free extremities of both tubes having been placed in a large vessel containing water; the end of the longer one was fixed horizontally with the surface, equidistant between it and the bottom of the vessel, and at a distance from its sides, but without infringing on its caliber in bending it. On alternately strongly compressing and relaxing the bottle, an active circulation ensued, at first attended by loud gurgling, but speedily on the expulsion of air assuming a steady and uniform progression; the influx which, from the arrangement of the valve was through the shorter tube, being, in consequence of the larger diameter of the tube and of the box, sufficient to allow of a constantly full effluent current through the longer tube.

A stethoscope was now partly introduced beneath the water in the reservoir, and the bell-part approached to the extremity of the longer tube, care having been taken that there should be no contact, and that the current should not impinge on the instrument. There was heard through it, when the ear was applied, a perfect rhythmical *bruit de soufflet*, loudest near the mouth of the tube, and decreasing in intensity as the stethoscope was moved from this position.

In this experiment the *bruit* was certainly not caused by

of the source of *bruit de soufflet* above advocated:—"One is apt to imagine that the sound of a pipe or flute is emitted from the wood, or other material of which it is composed; it really, however, arises from the cylinder of inclosed air striking against the reed of the pipe, or against the sides of the hole in the plate."

the vibrations of the vessel containing the water,—its dimensions completely forbidding such a supposition. Neither could it be caused by the vibrations of the tube, since, owing to the atmospheric pressure, it was quite full of water before the bottle was compressed, and when it was compressed, additional fluid was forced through it in a full stream, with considerable power, circumstances, as proved by Dr. Corrigan, that must have prevented it from vibrating. That it was caused by the currents issuing from the end of the tube, displacing the water in the reservoir, is plain.

In the tube itself a *bruit* was distinguishable for a short distance, but it gradually diminished from the end beneath the water, until it became lost before reaching the neck of the bottle, where none could be detected. This *bruit* was quite unattended with *frémissement*, as would not have been the case had it originated in the tube. I therefore regard the sound as merely transmitted from the water, as may easily be conceived. It could not, as has been said, have originated in the tube, as there was sufficient tension to prevent its contents from dividing into minor currents; but on their escaping from the aperture, this, although of full size, became relatively a constriction. From the divergence now occurring, the integrity of the fluid column was destroyed; it became divided into separate currents, and *bruit de soufflet* was formed on the same principle as when it occurs in front of an obstruction in a tube, or in one in which there is insufficient tension of its contents to prevent them from dividing, while to the hand placed in the reservoir, so as to receive these currents, a perceptible thrill (*frémissement*) was communicated. There was, however, this difference:—in a tube, obstruction to the diverging currents is chiefly lateral, while in my experiment a portion of the passive water in the reservoir was of necessity displaced in front of that issuing from the tube in an active state before *bruit de soufflet* could occur. On the relative manner in which this dis-



placement is effected, and the circumstances which regulate it, as I shall afterwards explain, an important part of my theory of the cardiac first sound depends.

I regard *bruit de soufflet*, then, as the result of a diminution mutually exerted in the pressure of the particles of a body of fluid in motion; some of the circumstances under which this occurs have been already alluded to. The consequence of this is, the main current becomes split into numerous smaller ones. The particles, in place of a progressive motion, in which an equable relation to each other was preserved, assume new and irregular movements. If these currents are confined within elastic walls against which they impinge, *frémissement* is produced. Its occurrence is, therefore, accidental; and *bruit de soufflet*, although certainly rendered louder by the intervention of solids in its mechanism, is capable of being produced altogether independently of them.

Under the second division of this class, or concussion sounds, I place, as I have said, the natural sounds of the heart, as well as those resembling them, heard in certain aneurisms. The latter, when double, belong almost exclusively to those formed on the superior or thoracic division of the aorta. Agreeing with Dr. Bellingham, that there is a sufficient general analogy between the normal and abnormal sounds of aneurism of the arch of the aorta and the normal and abnormal sounds of the heart to indicate a close affinity in their mechanical production,—I cannot coincide with the explanation of it which he offers. He says<sup>a</sup>, “we have seen that normal and abnormal sounds which can scarcely be distinguished from the cardiac sounds are developed in an aneurismal sac simply by *friction* between the blood and the lining membrane of the orifice of the sac and its parietes; it is not too much to infer, therefore, that the same agency is capable of developing similar sounds in the heart. I

<sup>a</sup> Dublin Medical Press, vol. xix. p. 205. The sounds heard in thoracic aneurisms resembling the natural cardiac sounds have been termed by Dr. Bellingham their normal sounds, which, for the sake of convenience, I have adopted.

think, then, that it is at the orifices of the ventricles that the normal sounds of the heart are developed, particularly at the orifices of the left ventricle; the first sound at the arterial, the second at the auriculo-ventricular orifices; and that both are produced essentially by friction between the blood and the parietes of these orifices; the first during the systole of the ventricle; the second during its diastole."

It has been already proved by the experiment with the India rubber bottle, that during the passage of fluids, under a certain amount of tension, into a tube, friction cannot be regarded as even an auxiliary source of sound,—the passage being effected without any sound; while to prove that concussion, accompanied by sound, is capable of being produced in fluids under certain circumstances, I adduce the following experiment:—

The same apparatus having been employed as in the last experiment, a solution of gum Arabic, of a consistence to represent blood, was substituted for water, and the stethoscope having been applied as before, a sound, strongly resembling the first sound of the heart, was observed to accompany the junction of the fluids in the reservoir<sup>a</sup>.

In this case, there not being the same facility for the divergence of the fluid cylinder on its escaping from the tube, owing to the viscosity of the fluid, its integrity was in a greater measure preserved. For the same reason, the fluid in the reservoir was displaced with greater difficulty, and in place of *bruit de*

<sup>a</sup> I have been the more careful to satisfy myself of the correctness of this observation, as Dr. Williams, after speaking of the great difficulty in making fluids originate sounds, states that, "on making an experiment with a gum-elastic bottle, by filling it with water, and then forcibly compressing it under water by the end of the stethoscope, avoiding the use of the hand, for that produces its own muscular sound, I have failed in procuring any sound at all approaching to that of the heart's contraction."—*Op. cit.* p. 296. But from what I have shown, it is plain that such a result was not to be looked for where water was used in the experiment, not to mention the difference in the apparatus employed. I have also succeeded with the above experiment by substituting a solution of treacle for gum-water.



*soufflet*, or the result of diverging currents, there was the result of concussion, or a sound closely approximating the first cardiac sound.

The heart has been aptly compared to the forcing-pump: let us then briefly examine their general resemblance, and see whether we cannot afterwards draw from it an argument for a further analogy between them bearing upon our present subject.

In the pump we find a valve at the bottom of the cylinder, opening upwards or in the direction of influx, the repetition of the auricular valves of the heart; the descent of the plunger, and the ventricular action, are also in effect precisely the same; while the discharge-pipe of the pump, with its valve, finds its exact counterpart in the outlets of the organ. When the pump is worked, moreover, as the observer cannot fail to notice, a peculiar sound, distinct from that of the valves, or the friction of the parts of the engine caused by the efflux of the water through the discharge pipe, is heard; and in this, making allowance for the modification of both by contingent circumstances, will be found the analogue of the first sound of the heart. Here, although water is the fluid acted upon, from the great force employed, and from the presence of stationary fluid in the discharge-pipe, an imperfect concussion sound is formed, but that a viscid fluid would, under the same circumstances, produce a more perfect resemblance, I have little doubt.

Having now shown that sounds, closely allied to the natural first sound of the heart, can be formed by the shock occurring between two portions of a liquid of a certain consistence, one of which, on being forcibly propelled by an intermittent action, is brought into contact with the other in a state of rest, or comparatively so, I will proceed to apply the fact to the conditions existing in the heart itself, taking its left side to represent both.

Subsequent to the elastic re-action of the aortic walls, which we must suppose does not occupy the entire period of the diastole of the ventricle, the column of blood in the upper part

of the aorta attains a state of momentary repose. This column, in a normal state, is (as has been said) under considerable tension, and it is perfectly isolated from the contents of the ventricle by the semilunar valve. When systole occurs, the valve, with its superposed blood, is forcibly thrown forwards by the vigorous propulsion of blood from the ventricle; concussion now ensuing between the active and passive portions of blood, a sound is produced on the same principle and from the same cause as in my experiment; and this, *cæteris paribus*, is the essential element in the normal first sound of the heart.

Without, however, overlooking the influence of the arterial parietes in probably contributing to the clearness as well as the loudness of the sound, I offer the following observations, derived from the shape and arrangement of the valve, as to some circumstances that appear to me in this case especially favourable to the occurrence of concussion. The three segments of the coronary valve are acted upon by an equable force; they are, therefore, simultaneously lifted, and the blood thrown up must be conceived to assume at the moment a somewhat conical configuration. But the force having been applied to the inferior or cardiac sides of the segments, the opposing surface of blood, or that resting on their superior sides, will be thrown into the very opposite shape, or that of a hollow cone. Now as this force must, of necessity, greatly exceed the resistance in the aorta, a diminution of tension will, I conceive, occur at the instant of the elevation of the valve between the portions of blood referred to,—a matter that must certainly contribute to the force of their subsequent collision.

I have next to consider the more special laws by which the sound in question is regulated; in other words, the precise conditions upon which the first sound preserves its integrity, and those upon which it is transformed into *bruit de soufflet*. For its perfect development three conditions appear to be requisite:

1st. A certain amount of pressure in the circulation.

2nd. A certain condition of the blood.



## 3rd. Non-obstruction of the moving body of fluid.

The facts which I shall adduce in illustration of the above will be such as are best known, and will be most readily admitted. That a certain amount of pressure or fulness of the circulatory apparatus is requisite is shown by the occurrence of *bruit de soufflet* in the hearts of animals after excessive depletion, as has been often observed. It is the natural first sound that in these cases becomes transformed into the abnormal sound.

That a certain condition of the blood is necessary is manifested in the change of the first sound into *bruit de soufflet* in cases of the anemic diathesis. This may depend solely on the loss of viscosity in the blood, it by no means following that in all cases of anemia, as might be inferred from the term, that the absolute amount of blood in the system is diminished. This change of sound has been already demonstrated by experiment. In the case of venous murmurs observed in this disease, however, as from the more mobile state of the blood owing to its diminished viscosity, increased motion must result, so from the last, diminution of pressure will ensue. Two favourable conditions thus concurring in these vessels, a *bruit* is produced in them, although normally unaccompanied by any sounds.

That non-obstruction of the moving body of fluid is essential is proved by the well-known connexion between *bruit de soufflet* accompanying or replacing the first sound of the heart, and the various pathological changes of the aortic outlet, whether consisting in contractions or in morbid growths, all having a similar effect, impairment of the normal configuration and force of the systolic wave. If this be broken, or thrown into minor currents by either of the causes related, the principles of concussion upon which the normal first sound is dependent being infringed upon, the first sound becomes replaced by *bruit de soufflet*.

I think it will be admitted that such a view of the relation

between the normal essential sounds and abnormal systolic sounds of the heart, and their mutual convertibility, at least is more in accordance with clinical experience than any which refers them to other origins. Thus in any case of cardiac systolic *bruit*, if the normal first sound of the heart is attributed to muscular contraction, the normal sound being frequently quite absent must be regarded as masked by the accompanying *bruit*, a circumstance, under a certain amount of loudness of the *bruit*, not inconceivable. But we know that even faint murmurs sometimes replace the natural first sound of the heart, indicating that an essential change in its production has occurred. It is also true that in certain cases the abnormal sound appears, as it were, engrafted on the normal. This is a circumstance easily accounted for where the former has its origin at the mitral orifice, while in cases in which the *bruit* is exclusively of aortic origin, I would refer to the sounds admitted in certain instances to be auxiliary to the essential first sound, to explain the combination<sup>a</sup>.

But it may still be objected, first, that as the sounds of the heart are respectively derived from twofold and independent sources, complete transition from normal into abnormal sound, especially if the latter be not of a loud character, can only occur from the same morbid association existing at both sides of the heart. I regard the left side, however, as the chief contributor to the sounds, this being accounted for by its superior muscular power and other circumstances; a *bruit*, therefore, occurring at this side would most generally suffice to render inaudible the natural coincident sound of the right side. Secondly, that in the not infrequent case of systolic *bruit* from imperfect mitral valve, the first sound, if not masked by the loudness of the abnormal sound, should always be heard distinct

<sup>a</sup> It is observable that, while Dr. Williams, in his work already referred to, speaks of murmurs "replacing" or "supplanting" the second sound, he never uses the terms in reference to the first sound. The connexion between his own theory of the latter and this procedure is sufficiently obvious.



from the *bruit*, which is not warranted by experience. But from what I have said already, it is plain that one of the conditions of the production of the first sound in the aorta, viz., a certain amount of tension, will be directly infringed on by this lesion, the regurgitation of blood into the auricle being accompanied by an exact proportional diminution of that sent into the aorta. This might be expected to lead, according to the degree in which it occurred, either to great impairment of the natural first sound, or to its transition into *bruit de soufflet*, in accordance with the law of diminished pressure already dwelt upon. Whether *bruit de soufflet* is ever thus produced in the otherwise healthy aorta, forming, with that caused by the mitral regurgitation, a single sound, but of a twofold origin, I will not pretend to say. The fact that this lesion of the mitral orifice furnishes some of the loudest examples of *bruit de soufflet* is, I think, sufficient to excite such a suspicion.

The objection to the origin of the first sound in the arterial outlets, drawn from the relative distinctness of the second sound at the top of the sternum, or corresponding to the arch of the aorta, as compared with the first sound, while the latter is heard most distinctly between the ribs, corresponding to the apex of the left ventricle, does not appear to me to be of a serious nature. The second sound, owing to its sharper character, is better calculated for transmission along the aorta than the first sound; but I have repeatedly observed both sounds equally distinct, and occasionally the first sound even the loudest at the top of the sternum. That the first sound should be ordinarily most distinctly heard in the position alluded to, I think attributable to the fact that during systole the apex of the left ventricle is brought into direct apposition with the parietes of the thorax, and that at the moment, owing to its firm contraction, and the expulsion of the contained fluid, it is placed under the most favourable circumstances for conducting sound. Cruveilheir states that in the case of ectopia cordis observed by him, the first sound was heard

loudest at the root of the aorta; an important testimony in favour of my explanation of its mechanism.

Of the second, or short cardiac sound, I mean to say little, my own inquiry into its cause leading me fully to agree with the statement of Dr. Williams, founded on his experiments on animals, that it results from the closure of the semilunar valves; and I have myself contrived an apparatus by which the sound can be exactly imitated. It consists of a wooden tube, in the inside of which three portions of bladder were fixed by a method, with an account of which I will not trouble the reader. Through one end of this tube, and in a direction to raise the valve, an intermittent circulation of gum-water was carried on by means of an India rubber bottle, furnished with a valve and supply-tube as before used, and communicating by suitable appendages with the other extremity of the tube. On applying the stethoscope to the wooden tube, a sound similar to the second sound of the heart could be heard. One observation made with this apparatus I think worth recording: I found that the closure of the mimic semilunar valves depended more on the tendency to a vacuum formed in the bottle by its expansion, than on the falling back of the column of fluid thrown up by its contraction. The sound was consequently loudest when the supply-tube of the bottle was compressed, so as to cause a greater tendency to a vacuum therein. It seems to me, therefore, that the diastole of the heart has been too much overlooked as a cause, in ascribing the closure of the semilunar valves solely to the recoil of blood. From the constantly full condition of the vessels, and the closure of the valves being effected so immediately subsequent to the termination of systole, owing to the unfilled state of the ventricle at the commencement of diastole, this recoil must be in reality very trifling. I regard this sound, however, as coming strictly under the head of concussion sounds; but here the concussion is between a fluid and a membranous expansion, instead of between two fluids, as in the case of the first sound, its charac-



ter being, as might be expected, different from the latter<sup>a</sup>. While, then, the first sound may be stated as coincident in duration with the systole of the ventricle, the second sound happens at the commencement of diastole; the first, or short silence, corresponding with the interval between the first and second sounds, while the second, or longer silence, is chiefly correspondent with the ventricular diastole.

The next sounds that claim attention are those observed in aneurismal sacs. The occurrence of a double sound resembling that of the heart in thoracic aneurisms, those attended by *bruit de soufflet* forming the exceptions, is well known. Closely allied in nature to the preceding sounds, let us examine whether this resemblance can be traced to a similarity of mechanism in their production.

Let us suppose a distinctly sacculated aneurism, which configuration, as already pointed out by Dr. Lyons<sup>b</sup>, I conceive to be necessary to the perfect development of these sounds, having a smooth and moderately-sized communication with the arch of the aorta, on which it is situated. All parts of this sac unoccupied by coagula will be filled

<sup>a</sup> I had hoped to be able to produce, with the same apparatus, a sound resembling the cardiac first sound, under circumstances more closely allied to those existing in the heart, but on the same principles as the sound in my experiment on this subject. Many circumstances, however, combined to prevent my carrying this into effect, as may easily be conceived. Nor was I, as might be anticipated, more successful after having, by a troublesome proceeding, caused an artificial circulation of gum-water to pass through the left ventricle and a portion of the aorta of hearts taken from the bodies of sheep and pigs. The rigid and altered state of the parts, as well as the nature of the artificial connexions with the organ, was sufficient generally to determine the sound elicited to be *bruit de soufflet*, as in the apparatus referred to, instead of that sought after. In the experiments with hearts, I was also able to produce the second sound, but imperfectly; and though, with regard to the first sound, my success has not been complete enough, by either mode, to induce me to refer to them as direct proof of my position, it was sufficient to warrant me in saying, that I feel satisfied that, with a more perfect apparatus, the essential part of this sound may be artificially demonstrated on the principles I have pointed out.

<sup>b</sup> Dublin Quarterly Journal of Medical Science, New Series, May, 1850.

with blood. This must be the case under all circumstances, as a vacuum cannot be supposed to exist in it. The blood thus isolated from that in the aorta will be in a comparatively passive condition. I have proved this experimentally, by causing a solution of gum to circulate rapidly, by means of the apparatus already described, through a tube of glass, bent, in imitation of the aorta, upon the bent part of which a hollow globe of the same material was formed, communicating with the tube so as to represent an aneurism. Most of the fluid in this globe was seen to possess a motion of a very passive kind. It was an eddy from the point of ingress through the aperture, most intense here, and revolving towards the opposite part of the circumference of the sac, where the motion became greatly diminished. To this retardation of the blood, the occurrence of fibrinous deposits in aneurisms is to be attributed, in conformity with one of the well-known laws upon which the integrity of this fluid is preserved. When the blood sent through the aorta by the action of the ventricle impinges on that situated at the orifice of a sac so circumstanced, the concussion occurring at this point being instantly reproduced between the interior of the sac, or the solids existing therein, and the blood in apposition with it, *cæteris paribus*, a sound of the same class as the first sound of the heart will be the result. Should, however, one or more of the causes of *bruit de soufflet* already mentioned be in operation, this sound, in certain instances, accompanied by *frémissement*, will occur in its place. And the same observation holds good with regard to the occurrence of *bruit de soufflet*, instead of the second sound of aneurism, to be presently discussed. I therefore attribute the sound, not, as has been done by some, to friction from the rapid motion of the blood in the sac, but, on the contrary, to its state of comparative repose, by which resistance is presented to another body of blood forcibly brought into contact with it. The appropriateness of the term *bruit de choc*, as expressing something between an impulse and a sound,



used by Gendrin to designate this sound, appears a corroboration of this explanation of it. I am disposed to consider, as I have already said, that the development of the sound bears a direct relation to that of the sac.

With regard to the normal second sound of aneurism, I maintain that it depends on the same proximate cause, concussion in consequence of a second impulsion of blood against that already in the sac, as that just described; however the mechanism of the second impulsion may be otherwise explained. The theory of Dr. Bellingham, that it is a regurgitation of blood into the aneurismal sac from the large arteries, arising from the arch of the aorta, I regard, with Dr. Lyons, for the reasons stated by him, as quite untenable. The explanation of Dr. Lyons, which he states "agrees very nearly with that of Gendrin," appears to me sufficiently satisfactory. It is attributed by him to a second impulsion of blood into a sacculated aneurism from the arterial systole, succeeding that of the ventricle by an interval sufficient to isolate the sounds and impulses resulting from both. This interval he conceives to be probably confined to the upper part of the aorta, and that at a certain point in the vessel the systole of the heart and that of the artery becoming coincident, the extreme rarity of its occurrence in aneurisms of the abdominal aorta may be thus explained. It is rather difficult to conceive the interval between the arterial distention and its subsequent contraction or systole to be at any part, or under any circumstances, so considerable as to account for the marked distinction between the first and second sounds of aneurism; but observation seems to warrant his conclusions. Dr. Lyons himself, having previously spoken of the probably single impulse of the abdominal and other arteries, says: "Indeed that of the ascending portion of the aorta is most probably single also; and it is only when a lateral diverging current is produced into an aneurismal sac that the arterial systole manifests itself by giving a second impulse."

The column of blood in the aorta is, normally, as has been said, at all times under considerable tension, the semilunar valve forming, when closed, its *point d'appui*. Any force acting at this time upon that portion of the column nearest to it must therefore cause it to move upwards from the valve. Now the diastole of the ventricle having commenced immediately previous to the closure of the valve, a portion of the wave just thrown up with much distending force by the systole becomes suddenly arrested and drawn backwards; a reverse movement to any extent being only prevented by the presence of the valve. The distention now occurring at the commencement of the column is relieved by a portion of it being, by the elasticity of the aortic wall, again propelled forward, with the effect of causing a secondary influx into the sac (with its accompanying phenomena) situated on any vessel within a certain distance from the heart. Owing to the same cause, however, that originated the force,—the elasticity of the vessel,—this secondary wave would be lost except within certain limits, thus explaining the almost complete restriction of the second sound and impulse to intra-thoracic aneurisms.

My limits compel me here to bring my observations to a close; and though I have strictly confined myself to the mechanism of the sounds treated of, I feel much remains to be said on the subject. The new views of the causation of some of them have not been proposed without mature consideration, and a careful repetition of the experiments upon which they are founded. If, as I would fain hope, they may be instrumental in contributing to a clearer conception of the causes of these interesting and practically important phenomena, I shall consider any trouble they may have cost me as amply rewarded.



ART. XV.—*Surgical Observations.* By CHRISTOPHER FLEMING, M. D., M. R. I. A., Surgeon to the Richmond Hospital, &c., and SAMUEL WILMOT, M. D., Surgeon to Steevens' Hospital, &c,

WE venture to hope that we may render available to our professional brethren the ample fields of experience placed at our command, by recording the results of our joint observations on some of the more important topics in surgery; and with this view we now proceed to describe what we have observed as to *the casualties or contingencies attendant on the palliative treatment of hydrocele of the tunica vaginalis testis.*

When we reflect on the numerous cases which present themselves to the surgeon for the palliative treatment of hydrocele of the tunica vaginalis testis, and when we consider the particulars of the requisite operations to accomplish it, we are rather surprised than otherwise, that the casualties to which we wish to direct attention are not of more frequent occurrence. The operations alluded to are often carelessly performed, and the subjects of them too often absolutely reckless of their immediate consequences, yet these consequences are by no means free from danger even as regards the life of the patient, quite irrespective of the necessary injury to the structures implicated. The usual order of their occurrence as to time, after operation, as witnessed by us, is as follows:—

1. Sanguineous effusion into the cavity of the tunica vaginalis testis, or hematocele of that cavity.
2. Diffuse inflammation of the scrotum.
3. Acute inflammation of the tunica vaginalis.
4. A combination of these three lesions.

#### I.—HEMATOCELE OF THE TUNICA VAGINALIS TESTIS.

We have not very often met with this casualty, as attendant on the palliative treatment of this form of hydrocele.

The surgeon is generally on his guard in that class of cases

in which it is likely to supervene, and is hence cautious in the steps of the operation. The contingency, however, does occur, and its accession is attended with a train of symptoms so characteristic, that, in the vast majority of instances, it betrays much ignorance not at once to recognise their presence. It is not requisite to enter here into any details respecting them, as the hemorrhage and its source must attract the notice of the most careless observer. In the following cases some peculiarities existed which we must notice.

CASE I.—*Hematocoele of the Tunica Vaginalis Testis, from Wound of a deep Vessel in the Operation for Tapping; slow Development of; Absorption of Fluid.*

R. Donnelly, aged 58, presented himself at a dispensary, the subject of hydrocele of the tunica vaginalis testis. The disease was of long standing, the swelling was considerable, and its diagnosis was unattended with any difficulty. The fluid was attempted to be drawn off by a trocar and canula in the ordinary manner, an incision in the integuments having been previously made with a lancet. Some resistance being found in the entrance of the trocar, from a hitching against the shoulder of the canula, a violent plunge was made, whereby it suddenly darted forwards, and struck the back part of the sac. On the withdrawal of the trocar, blood passed through the canula, and tinged the hydrocele fluid that escaped. The nature of the accident at once attracted attention, and the impression was that either the testicle was struck, or some of the vessels of the chord wounded.

The man was subsequently admitted into hospital. No local phenomena supervened for twenty-four hours, when a swelling rapidly arose in the seat of the original hydrocele, and soon attained a magnitude of the size the tumour previously possessed. Sensations of fluctuation were manifest; and the weight of the tumour, together with its complete opacity, left no doubt as to its nature. No constitutional symptoms of any



note supervened; and the local were those above mentioned, accompanied by a sensation of tension. By rest, by cooling medicines, and by ordinary evaporating and stimulating applications, the swelling gradually diminished, but a fulness and hardness persisted for a very lengthened period, the hydrocele did not, however, return.

CASE II.—*Hematocoele of the Tunica Vaginalis Testis; sudden and rapid Formation of; Absence of Wound of any Vessel; Supervention of inflammatory Symptoms; Surgical Interference; Recovery.*

Patrick Yourell, aged 59, a messenger, had been in the habit of applying at hospital for the tapping of a large hydrocele of the tunica vaginalis. On previous occasions the operation was followed by the ordinary favourable results, not the slightest inconvenience supervening. On the present occasion the fluid was drawn off with equal care, and no unusual symptom presented itself; not a trace of hemorrhage from the wound in the scrotum or the sac of the tunica vaginalis was visible, and all fulness subsided. The usual dressings were adjusted; but in less than ten minutes a sensation of swelling and weight was felt whilst he was walking home; this feeling rapidly increased, and he re-applied at hospital, when, on examination, the side of the scrotum corresponding to the hydrocele, was found to be distended as fully as previously to the removal of the contained fluid, a quarter of an hour before. All the essential signs of sanguineous effusion suddenly increased. The requisite constitutional and local remedies were at once adopted, and for the first eight or ten days the case appeared to progress favourably, though there were occasional sensations of pain and tension, and some slight fever; the integuments of the scrotum were yet natural in every respect in consistence and colour. About this time a puncture was made from which there escaped some dark fluid, like treacle, with great relief to the tension; it was devoid of smell or purulent commixture.

In less than twelve hours after this, a violent rigor occurred, followed by intense pain in the tumour and high fever, from the persistence of which it was now deemed indispensable to make a free incision through the sac. It was found filled with dark, grumous blood, mixed with serum; but no special point of hemorrhage could be detected. Relief, both local and constitutional, rapidly followed, and the obliteration of the cavity was effected in the usual way, the permanent cure of the hydrocele being also accomplished.

Both these cases occurred in Steevens' Hospital, where we had the opportunity of watching their progress.

We might enumerate other cases; but the above are sufficiently illustrative of the objects we have in view. They not alone manifest the substantive symptoms of this casualty, but also show the varied periods at which they may supervene, and the varied sources from which the hemorrhage may arise. In one case, there can be no doubt as to the cause of the casualty and to the source of the bleeding—the characteristic symptoms being rapidly and suddenly formed, almost under the eye of the surgeon, and by his act. In the second, the local symptoms are equally striking; whilst the origin of the bleeding is conjectural, being most probably attributable to the removal of the ordinary support to enlarged and distended vessels. In a third class of cases, an interval elapses before the disease develops itself; although a certainty exists as to the mischief done by the surgeon. All these details demand attentive consideration, if we wish to base our remedies on accuracy of diagnosis, combined with a knowledge of the anatomy of disease—the only certain foundations for successful or scientific treatment. But here, let us ask, may the surgeon, from over-anxiety or from oversight, be mistaken in his diagnosis? May he imagine hematocele of the tunica vaginalis of the testicle to occur as a sequela of his operation of tapping, when such is not the fact? We think so; and as we write, there is now under treatment in the Richmond Hospital a case



which has fully confirmed us in this idea, especially where an interval of some hours may elapse before the hematocele is established, as in Case I. The case we now allude to is that of Nicholas Egan, aged 27, a butcher by trade. We have it noted in our case-book as being *chronic enlargement of the testicle, with copious effusion into the cavity of the tunica vaginalis*. The swelling was large, and approaching somewhat an hour-glass shape, from a contracted band across its central portion: it was almost globular above and below, and each compartment gave a distinct sensation of fluctuation.

There was no difficulty in the diagnosis, and the outline of the testicle adherent to the anterior wall of the sac could be most satisfactorily delineated when testing the transparency of the fluid within, a test which, we may here notice, is much assisted by viewing the tumour through a stethoscope, if a candle is not within reach. We tapped this hydrocele; there was more of bleeding from the wound in the scrotum than we expected, and, moreover, during the operation the man fainted, both circumstances attributable, perhaps, to his being in the erect position. But, to the point, although we fully emptied the tunica vaginalis, in less than twenty-four hours afterwards we found it distended nearly as tensely as before. We had not the comparative weight of the tumour to assist us, owing to the condition of the testicle, but we had its perfect translucency.

Upon the test mentioned we based our diagnosis, assisted by the history of the case, and the subsequent rapidity of absorption and subsidence of the swelling have proved its accuracy. After the lapse of less than a week hardly a trace of fluid is to be found, and the outline of the testicle is fully discernible. This never occurs with blood. It requires for its complete absorption as many weeks as days are enumerated here. The surgeon should then be prepared for the rapid, though, we must add, rare, re-accumulation of fluid after tap-

ping for hydrocele in some cases, and not be mistaken in his diagnosis.

When hematocele of the tunica vaginalis occurs, its treatment must be influenced by the same general principles which guide us under similar circumstances elsewhere. Hematocele of the tunica vaginalis, of the character we describe, is identical with traumatic hemorrhage in other situations, and our constitutional and local remedies cannot materially differ. Our whole effort in the first instance must be to stay the effusion of blood; in the second, to quiet vascular action both generally and locally, and prevent inflammation and its consequences, whereby we promote that object so desirable under all aspects,—namely, the absorption of the effused fluid by nature's work, to the exclusion of surgical interference unless called for, but when so, to anticipate any destructive processes by those prompt and energetic local means which it is unnecessary to specify further than as detailed in the cases cited.

## II.—DIFFUSE INFLAMMATION OF THE SCROTUM.

We have met with two kinds of diffuse swelling of the scrotum, as the result of tapping hydrocele with the trocar and canula. The first is a very mild form of œdematous inflammation, requiring little, if any, treatment. In the course of about from twelve to twenty-four hours after the operation, an erythematous blush is observed upon the skin of the scrotum, which becomes slightly swollen, œdematous, and tender: generally, no appreciable constitutional disturbance accompanies it. By making the patient observe the horizontal posture for a few days, fomenting the scrotum, and administering a brisk purgative, the swelling will quickly subside.

The second form of diffuse swelling of the scrotum is a severe and dangerous form of disease, and demands, upon the part of the surgeon, the adoption of the most prompt and decisive measures. It is a “gangrenous erysipelas” of the scrotum.



Under the title of “acute anasarca,” or “inflammatory œdema” of the scrotum, the late Mr. Liston has described an affection which leads to extensive sloughing of the integuments, and, according to his opinion, the disease is not substantially inflammatory. He says, alluding to the swelling of the scrotum: “This distention is or is not attended by redness or erythema of the surface; but there is reason to think, from the suddenness of the accession, and from the appearances on exposing the cellular tissue, that there is no actual inflammation of its texture, there being no induration, nor any appearance of lymph or puriform fluid in the areolæ.” Now, without wishing to deny the probability of there being an affection of the scrotum, characterized by the sudden effusion of serosity, in large amount, into its areolar tissue, unaccompanied by any distinct inflammatory action, after carefully perusing, and duly considering the cases given in illustration, we incline strongly to the belief, that the affection, described by Mr. Liston as “acute anasarca of the scrotum,” is identical with that which we have designated “gangrenous erysipelas” of that part. The symptoms of this affection, as we have usually observed them, are as follow:—The patient is first seized with a severe rigor, and soon the scrotum becomes red, swollen, and œdematous. The swelling rapidly increases, until it attains often an immense magnitude, presenting a bright red, glossy appearance; the rugæ being completely obliterated, from extreme tension of the areolar tissue beneath. As the effusion into its meshes proceeds, the feel conveyed on pressure becomes firmer, leading to the impression that a material, more solid than mere serum, occupies it; and if we make an incision into the part, turbid serum freely escapes, and the cut surfaces present a yellowish-white appearance. As the case progresses, the redness changes to a dusky hue, the swelling becomes soft and boggy to the feel; vesications, filled with a brownish serum, form on its surface, and the scrotum is suddenly converted into an extensive slough, which bears an exact resemblance to wet chamois leather stretched

across the testicles. When the slough is removed, the testes are laid bare, their only covering being the tunica vaginalis in which they are suspended. Once the slough is cast off, it is incredible how rapidly the reparative process is sometimes set up. Healthy granulations overspread the denuded surface, and quickly skin over; and if care be only taken to draw forward whatever portion of skin on each side may have escaped the destructive process, a very small cicatrix will remain. Accompanying these fearful local changes, constitutional effects of an alarming character are to be observed. In the very early stage, the fever is in general high, but it soon quickly merges into a low typhoid type, the predominant features of which are prostration of strength, restlessness, and loss of sleep. If, however, the patient has battled through the sloughing stage, as soon as the sloughs are cast off, all fever abates, and health is gradually restored.

In the greater number of cases we have witnessed, though the penis has been red, and the integuments infiltrated, it has generally escaped the sloughing process going on in the scrotum; but in some instances gangrene extends to it. In many cases, also, we have observed red patches leading from the scrotum in the direction of the spermatic cord to the lower part of the abdomen, under which circumstances the appearances, with the accompanying constitutional symptoms, bear so strong a resemblance to those caused by infiltration of urine, that nothing but the proof furnished from passing an instrument, and the history of the case, can enable us to arrive at a fair diagnosis.

The treatment of "gangrenous erysipelas" of the scrotum consists in making free incisions at the earliest possible period, facilitating the separation of the sloughs in the more advanced stages, and supporting the patient's strength all through by every means in our power. We have met with many such cases: the following, though an example of the idiopathic form of the affection, illustrates so well the foregoing observations



that we shall narrate it here. In it both penis and scrotum were involved in the sloughing process.

CASE III.—*Idiopathic gangrenous Erysipelas of the Scrotum; Acute Form; Recovery.*

Patrick Tully, aged 28, a labourer, of intemperate habits, and exposed to much hardship, was admitted into hospital. He stated that, seven days previously to admission, he was seized with a violent rigor, followed by nausea and vomiting; and shortly afterwards he perceived the skin of the scrotum to become red and swollen, both which conditions rapidly increased.

On his admission, the whole scrotum, except a narrow border, almost entirely round, was found in a complete state of sphacelus, resembling a piece of wetted chamois leather, stretched across the testes. The penis was swollen, the subcutaneous areolar tissue, particularly that of the prepuce, being greatly infiltrated; the skin was of a deep red, almost purplish hue, and on the under surface of the organ was a slough of considerable size.

The constitutional symptoms were as follow:—

Pulse 92, weak and compressible; tongue coated with a moist yellow fur, and great thirst and restlessness; he spoke occasionally incoherently. The patient can pass urine in a full stream, and the perineum is altogether disengaged. A full-sized catheter having been first introduced, and it having been thus ascertained that no obstruction in the urethra was present, free incisions were made into the gangrened parts, which liberated a few drachms of pearl-coloured serous fluid.

On the following day, a line of demarcation was observed between the dead and living structures; the sloughs then commenced to separate rapidly, and his health began to improve; and in exactly five days from the date of his admission, the sloughs were completely removed, leaving the testes uncovered except by the tunica vaginalis, which presented a dull white colour. In a week afterwards, all the parts were covered with healthy granulations.

The slough on the penis continued to spread a little after his admission; but not long after the separation of those on the scrotum, it began to be detached, and was soon replaced by a vigorous granulating surface.

The treatment consisted in the application of poultices and the warm dressing, fomentations of poppy-heads with camphorated spirit, in the proportions of an ounce of the latter to a pint of the decoction of the former; wine, porter, and strong nutriment.

The foregoing is a case in which the progress of the disease was very acute; but we have met with some instances where the affection was comparatively chronic or subacute throughout its successive stages, and was limited in extent, as is well exemplified in the following case.

CASE IV.—*Diffuse Inflammation of the Scrotum after Tapping for Hydrocele; Chronic Progress; Peculiar limits of Sloughing Process; Recovery.*

A. B., aged 55–60, in apparent rude health for his period of life, was tapped for hydrocele of the right tunica vaginalis testis. Its peculiar signs were well marked, with the exception of its shape, which was more globular than usual. The fluid drawn off was considerable, and its colour was tinted with more of a greenish hue than ordinary; it may also be remarked that it contained spermatozoa<sup>a</sup>. Notwithstanding directions to

<sup>a</sup> We have seen the hydrocele fluid assume varied shades of colour: as in the case noted it is often tinted green; we have seen it a perfect grass green; also colourless, almost aqueous, and these we have met with transparent and opaque; on two late occasions we found it like rice water, like milk and water, and like weak tea mixed with milk, and in such of a peculiarly disagreeable odour. In all these instances, with the exception of the grass green, we found spermatozoa very evident, in that we fancied at first that we saw these minute beings, but it appeared to us that the round bodies alone existed, the bristle-like tails were not visible to us. We have<sup>er</sup> found them decidedly enjoying an independent motion, and that when the ovate bodies alone appeared to exist.

We made these examinations too carefully to be deceived, guarding ourselves



the contrary, this man went through his office work the day of the operation, and walked about without proper support of the scrotum. He was attacked with shivering about thirty-six hours afterwards, and felt the parts uneasy; he yet continued his duties, and he was now (on the fourth day) obliged to take to bed. The fever increased, and the scrotum swelled and assumed the character above described. A slough about the size of a shilling showed itself at the lowest part, where there was also œdema more considerable than elsewhere; an incision was made through it, and other incisions at points where its integuments were tense and shining. A considerable quantity of wheyish-coloured fluid escaped, the areolar tissue underneath presenting an ash-coloured appearance like matted wet tow. The margins of the incisions subsequently became gangrened, but only to a small extent, so that isolated patches of the scrotum were alone destroyed; the areolar tissue underneath separating in flakes to a variable extent, and proportionably undermining the remainder of it. Under the use of bark and stimulants, the constitutional symptoms gave way, and the local were repaired, with a comparatively limited destruction of the integuments, in about five weeks from the operation.

#### ACUTE INFLAMMATION OF THE TUNICA VAGINALIS TESTIS.

This form of inflammation, as attendant on the simple operation of tapping hydrocele, is not of common occurrence. Should it supervene, and assume that character ordinarily present, and always desirable in the radical cure of this disease as now adopted, it would hardly be entitled to notice in this commu-

against the ordinary sources of deception. In one specimen we also found a few octohedral crystals of oxalate of lime. We may add, that we have met with the hydrocele fluid loaded with cholesterine. In one case the fluid was dark as chocolate, apparently homogeneous, but when shaken and then examined, or when allowed to throw down a deposit, the floating micacious and glistening particles gave it much the appearance of variegated sealing wax. Indeed, we would venture to anticipate the microscopic discovery of cholesterine by this test, even when the colour is not much altered from the ordinary amber colour. It looks as if oil was mixed through the fluid.

nication; but when it exhibits a form to which we are anxious to direct attention, it requires great circumspection, not alone as regards early diagnosis, but also as to its efficient treatment, being always attended with much constitutional disturbance, and being productive of a series of local morbid changes indispensable to be familiar with. Like that of diffuse inflammation of the scrotum just noticed, it may be acute and rapid in its progress, whilst again it may be slow, and assume somewhat of a chronic or subacute character. We have never met with it that it has not been ushered in by constitutional symptoms, and those of a highly inflammatory and sthenic type, yet most treacherously gliding into the very opposite extreme.

In the variety of inflammation which follows a subacute course, the symptoms are most deceptive, and are often so unconnected and isolated, that it requires no small amount of attention for their detection. This is the form of inflammation that we have generally met with as contingent on tapping hydrocele, and the following case affords a good illustration of its features, both local and general, and also of the requisite treatment.

CASE V.—*Acute Inflammation of the Tunica Vaginalis Testis, supervening on Tapping Hydrocele; Suppuration; Surgical Treatment; Recovery.*

Richard Kennedy, aged 46, labourer, and of tolerably healthy constitution, was for eight years the subject of hydrocele of the right tunica vaginalis testis, the history and nature of which require no particular notice. This hydrocele had been repeatedly tapped, and on one occasion was treated by acupuncture<sup>a</sup>.

<sup>b</sup> We have not unfrequently adopted this mode of palliative treatment of hydrocele amongst the working classes, and we are strongly disposed to the opinion that it is more suited to them if unable to rest quiet after tapping. We have never witnessed any unfavourable result from it; and moreover, we think that, often, the accumulation of the fluid is less likely to recur so soon.



On Saturday, November 30, it was again tapped. The steps of the operation were perfect, not a trace of blood beyond that necessarily attendant on the wound made, was visible, and the fluid removed was of the ordinary character, and in quantity about twelve ounces. The necessary dressings were adjusted, and the usual directions given as to rest, abstinence, &c. The poor man was, notwithstanding, obliged to work at a very laborious employment in a forge throughout that day, and at bedtime was struck with acute pain in the testicle of the affected side, accompanied by uneasy sensations in its vicinity, and some difficulty in passing urine. Violent shivering also now supervened; he had nausea and vomiting, and all the symptoms of high inflammatory fever set in. Some medicines and a warm bath relieved him, but the pain in the testicle continued almost unabated until the night of Sunday, when the scrotum began to swell, and in proportion to its increase in size, the pain gradually diminished. He was admitted into hospital on Tuesday evening, the 3rd of December, and when visited on the following day, the scrotum was found enormously distended, its veins turgid, and its colour in the immediate vicinity of the wound, and for some distance around, of a vivid red, and in fact presenting all the characters of diffuse inflammation of this structure, but limited in its extent. There was no general œdema, and there was perfect freedom of motion of every portion of it elsewhere over the tumour. This had reached the size it possessed before the hydrocele was tapped four days previously, as may be somewhat estimated from the fact, that the tumour measured in the longitudinal direction from the perineum forwards, fifteen inches, and transversely, fourteen, assuming nearly a globular shape. It was tense in feel; not much intolerant of pressure, and communicated to the hand a peculiarly hot sensation. It appeared to have great density, and it could not be said that there was any very distinct sense of fluctuation. In no part was it translucent, and its weight was considerable. Accompanying these

local phenomena, there was fever, the prominent features of which were, urgent thirst, furred tongue, deranged bowels, and total loss of appetite. The pulse was quick, and the skin dry; but there was really no appreciable amount of suffering complained of from the tumour. The case was considered and treated as one of inflammation of the sac of the hydrocele, with effusion, and local and constitutional remedies were accordingly prescribed.

The note taken on the 6th December, three days after admission into hospital, was as follows:—Fever, thirst, and restlessness less; no pain in the tumour, except when coughing or sneezing, and then it is all referred to the groin; no abdominal tenderness; all redness of scrotum removed; feeling of tension, and pain on pressure, less also; and he expresses himself as free from any pain when at rest. He was ordered diaphoretic mixture and evaporating lotion, as before.

9th. Local symptoms almost stationary; no increase of swelling; no pain; no redness; tension less, but sense of fluctuation more distinct; general symptoms also more stationary; tongue clean, but yet thirst and loss of appetite. He was directed to continue the local applications, cold or warm as agreeable, and the tumour to be supported; infusion of bark was ordered for him to-day.

10th. Twelfth day from the operation of tapping, and from the occurrence of rigor. Swelling not increased, as ascertained by measurement; absence of pain of any moment, no matter in what direction the tumour is moved; sensation of fluctuation more distinct, especially at the anterior part; weight considerable, and total absence of transparency; no discoloration of the integuments of the scrotum; in two or three patches there is some feeling of œdema, but yet the whole scrotum is moveable over the tumour; fever continues, and at times a feeling of chilliness is experienced; the skin is generally moist and damp. Treatment, general and local, was continued, and more generous diet ordered.



12th. Symptoms much the same; feeling of chilliness occasional; appearance of tumour and sensations in it are much as before; no pain; no redness; œdema equally limited. Local and constitutional remedies as before.

13th, 14th, 15th. The notes on these respective days, as regarded the constitutional symptoms, were, that there was rather more of a disposition to sweating, but no rigor had occurred; and that the countenance indicated somewhat of suffering, though none was complained of; fever was persistent, though diminished; pulse ranging between 80 and 90; tongue clean; thirst less, and food relished. There was superadded to the local symptoms already noted, an extension of the œdematous patches of the scrotum, with a slight tint of red on the surface; yet the absence of any pain, at least of moment, in the tumour was such that it could be poised in the hand, and turned from side to side without any annoyance, and considerable pressure was equally tolerated. There was the sensation of an additional weight in the tumour, and fluctuation in portions of it was manifest. No change was made in the treatment.

16th. Rather more fever, yet no rigor; no chill of any kind; pulse as before; scrotum somewhat more full and œdematous; not uniformly so, but in patches, and here the sensation of fluctuation more distinct; comparatively little pain even when firmly pressed.

17th. General feeling of uneasiness complained of; uncomfortable sensations in the tumour, but not amounting to pain; scrotum more extensively œdematous, and the patches of redness alluded to, more diffused; bulging of scrotum at two distinct points in this situation increased, and sensation of thinning and fluctuation more manifest; countenance haggard; sweating more profuse; other constitutional symptoms stationary.

The opinion now entertained in consultation was, that the case had reached that stage in which surgical interference was called for; that suppuration had taken place within the sac of

the tunica vaginalis; that the cavity should be fairly exposed, and the treatment afterwards conducted on ordinary principles. These steps were accordingly adopted, and a free longitudinal incision being made, a quantity, not much less than a pint, of serous fluid tinged with blood and mixed with pus and flakes of lymph, escaped. This was totally devoid of any fœtor, and no coagula of blood or fibrine were present. The tunica vaginalis was enormously thickened, especially in its anterior portions, where it was more than half-an-inch in depth, and the whole appearance resembled much that of an aggravated case of pericarditis. The thickening was evidently the result of the effusion of strata of plastic lymph, and this lymph, now firm and consistent, extended upwards towards the spermatic cord and downwards below the site of the testicle. The latter was slightly coated, but its consistence and size were natural; thus confirming the beautiful pathological law first inculcated by Gendrin. The surface of the whole cavity exposed was smooth; it communicated to the finger a soft, villous feel, and its colour was uniformly of a lightish grey, with somewhat of a pinkish tint. It was not highly vascular-looking, neither did it present any granulating appearances. It is unnecessary to particularize the subsequent treatment of the case. Primary hemorrhage was guarded against; the requisite dressings were varied according to the stages of the reparative processes set up, and ultimate recovery took place, the sac of the tunica vaginalis being completely obliterated. It may also be remarked, that the treatment above noted was not followed by any constitutional disturbance. On the contrary, on the day of the operation the man ate his meals as usual, and had little or no suffering beyond that naturally to be expected.

The length at which we have detailed the particular features of this case will render it unnecessary to extend our remarks much further.

The question of the presence of hematocele, in the first instance, at once suggests itself, but is disposed of when we reflect



on the history of the case, and when we contrast it with the morbid changes exposed at the operation. The necessity of an earlier interference in the way of operation might also be considered, but the character of the constitutional and the local symptoms, in cases of which we now treat, is really very deceptive. Neither one nor the other have the semblance of great intensity. The attendant fever is only violent at its onset, and then lapses into a state which, for the time, reconciles both patient and surgeon to its presence; and the local symptoms are, in reality, not severe, after the three or four first days. This is not unfrequently the case in inflammation of serous membranes in other situations, where copious effusion takes place rapidly, and we are very much disposed to think that too early interference is injurious. In cases which we allude to, nature often does her work better with closed walls until a certain stage, when the surgeon may assist her; but if he does so earlier, symptoms of serious local and constitutional disturbance may be superinduced, and the history of the radical cure of hydrocele confirms this view as regards the tunica vaginalis. When inflammation attacks its cavity after tapping, we have always observed that it runs into suppuration, or rather that it is identified with it; and amongst the cases which have fallen under our notice, we cannot bring to our recollection one in which plastic effusions did not take place to an equal, if not greater extent than in the case noted, and in which the serum effused was not largely mixed with purulent matter, and in all, the treatment adopted immediately stayed the constitutional symptoms, and the local progressed most favourably.

It would appear to us that the interference of the surgeon beyond the adoption of those antiphlogistic and general measures, unnecessary here to specify, must be entirely influenced by the circumstance of the case, and that the period for interference should not be permitted to exceed those limits when the implication of the coverings of the tunica vaginalis is manifest. If the scrotum become œdematous, in patches or other-

wise, if its natural mobility over the tunica vaginalis cease, and if, in addition, there be the slightest disposition to the supervention of diffuse inflammation, ever so limited in extent, we should not hesitate to adopt treatment, as in the above case, no matter what may be the sensations of the patient in the part, or what constitutional symptoms may be present, otherwise we should apprehend very serious results from the complication of the worst form of diffuse inflammation of the scrotum.

The last division of our subject, namely, the combination of the three lesions described: hematocele, inflammation of the scrotum, and of the tunica vaginalis, requires little or no comment, as an accurate recollection of the substantive symptoms of each will at once satisfy the practitioner of the nature of the case. The following short report will serve as an illustration:—

CASE VI.—W. C., aged 45–50, was tapped for hydrocele of the tunica vaginalis; in the operation it was obvious, from the history given, that a large vessel was wounded, and that effusion of blood into the cavity of the sac was the result. He applied at hospital about a week after the operation; the scrotum was distended to the size of a swan's egg; the integuments were oedematous and of a dusky hue, and the seat of the incision made in the operation was sloughing, and from it was exuding a serous fluid tinged with blood and excessively fetid. The integuments around were infiltrated with a wheyish fluid, which by pressure passed by the sides of the slough. A probe passed into the opening, moved freely under them and to a considerable extent, and without difficulty entered the tunica vaginalis, when a most offensive treacly discharge escaped. The amount of pain complained of was comparatively trifling, and the constitutional symptoms, though of a low asthenic character, were scarcely so severe as might have been expected in a case of the kind. A sharp-pointed bistoury was introduced at the aperture, and the sac of the tunica vaginalis freely laid open above and below it; dark grumous blood, of a most fetid na-



ture, mixed with large lumps of coagula, with pus, and with sloughs, was removed, and the cavity dressed with pledgets of lint damped with turpentine. The tunica vaginalis was like parchment, but the testicle, as in the last case, was soft in feel and of the usual size. In addition to the local treatment, every support was given to the constitution, and the man recovered perfectly in a fortnight after his admission into hospital.

In concluding our observations for the present, we may add that, although we cannot, perhaps, lay claim to much originality, yet we are not thereby deterred from laying them before the profession, as the concentration of opinions on practical subjects, when confirmed by a reference to cases, cannot be otherwise than useful. Under the respective sections we have adopted, most valuable information is, doubtless, to be gleaned from ancient and from modern authors; yet the special application of "remarks on the casualties and contingencies attendant on the palliative treatment of hydrocele of the tunica vaginalis testis" appeared to us to be desirable, from the variety of character they often assume in their origin and in their progress. That form of hematocele illustrated in the second case is peculiarly deserving of attention, as being by no means unlikely to occur in large, flabby hydroceles; and under the head of "acute inflammation of the tunica vaginalis testis," the details of the fifth case, and of that which follows, cannot fail to excite much interest in the mind of the anatomist and pathologist, quite apart from any surgical value they may possess.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Note sur le Redresseur Utérin (Pessaire Intra-Utérin) Articulé, et sur son Emploi dans le Traitement radical des Déplacements de la Matrice.* Par M. VALLEIX, Médecin de l'Hôpital Beaujon, &c<sup>a</sup>.

*Mode de Traitement très-simple des Rétroversions de l'Utérus. —Réducteur à Air.* Par M. le DOCTEUR A. FAVROT<sup>b</sup>.

THOSE of our readers who have read the discussions which have recently taken place at certain societies in London, concerning diseases of the uterus and their treatment, are, probably, convinced not only that “much *may* be said on both sides,” but also that much more has been said on both sides than is quite creditable to the good taste and good feeling of either party. Moreover, there has been a singular abstinence from a candid and fair estimate both of the existence and frequency of certain diseases, and of the remedies proposed.

We have been told that the profession in this country is “very slow,” because we object to receive everything on the authority of Edinburgh; and now we suppose we shall receive the same compliment from London because we do not choose to give up the results of our own experience under the denunciations of a London authority. Be it so: we are quite satisfied to take a middle course, neither rejecting nor adopting opinions or treatment because they are new, but because they may be true. We cannot hesitate, nor have we ever hesitated to denounce, *unnecessary* examinations in any mode as immoral, and unnecessary meddling with the uterine organs as injurious;

<sup>a</sup> Bulletin Générale de Thérapeutique Médicale et Chirurgicale, vol. xli. Paris: 1851, p. 248.

<sup>b</sup> Ibid. p. 321.



but, on the other hand, we are not going to abjure such valuable instruments as the speculum and uterine sound because they have been misused, or because a London authority chooses to denounce them.

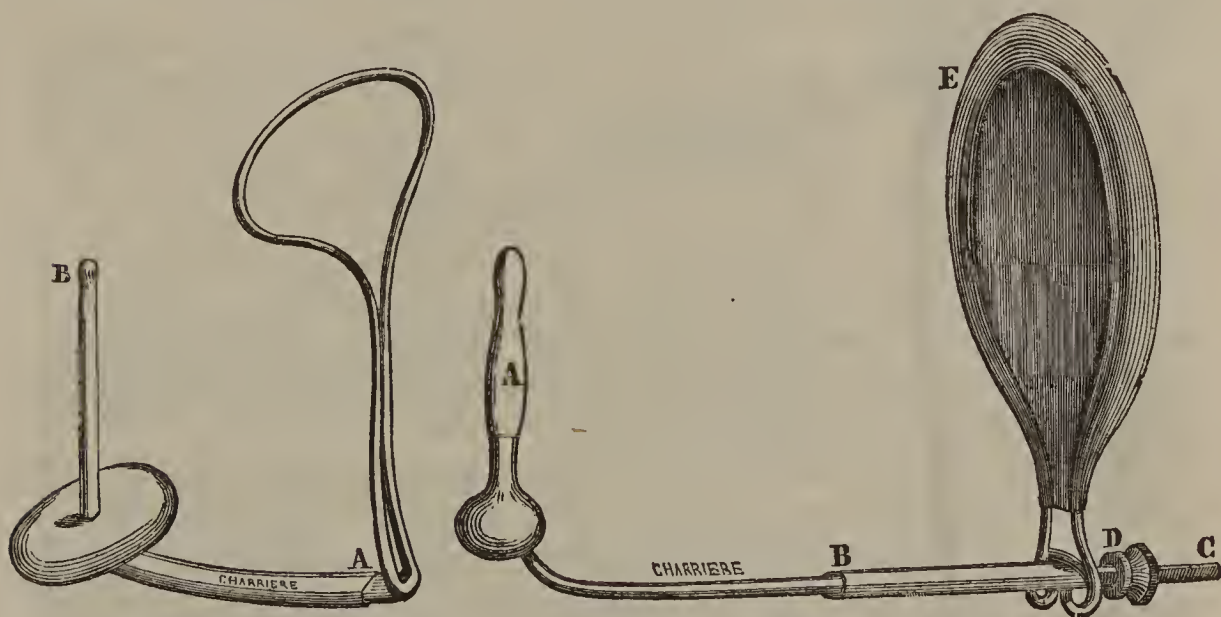
Thus much we have thought it advisable to say; but we do not intend at present to inflict upon our readers (who must be rather sick of the subject) any lengthened remarks upon uterine diseases and their remedies; we wish now to direct their attention to some modifications of Dr. Simpson's instruments, by M. Valleix, and we gladly avail ourselves of the opportunity afforded by our exchange arrangements with M. Debout, Editor of the *Bulletin de Thérapeutique*, to illustrate the subject.

The uterus may either be turned backwards in the pelvis (retroversion), or the body may be flexed backwards upon the cervix (retroflexion). To remedy either of these displacements, Dr. Simpson has contrived an instrument (Fig. 1), consisting of two separate parts; the prong, B, being introduced into the uterus, the outer portion of the instrument, which is fastened over the symphysis pubis, is joined to the internal portion at A.

Fig. 1.



Fig. 2.



The first alteration made by M. Valleix was to lighten the obturator at the lower portion of the prong, and to join permanently the two portions of the instrument, allowing of adjustment by means of a screw and slide, D, B. (Fig. 2.)

The next change was to allow of a different degree of elevation in the prong, according to the peculiarities of the case, and this he effected by a more complicated apparatus.

The upright prong and the horizontal branch are united by

a joint under the control of the screw, A (Fig. 3), by turning which the elevation required may be exactly obtained, while

Fig. 3.

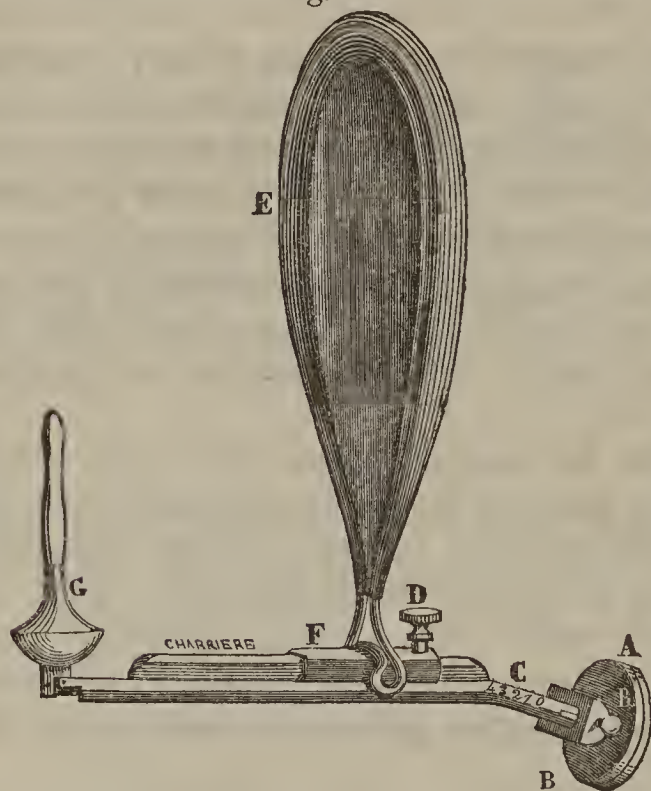


Fig. 4.



Fig. 5.

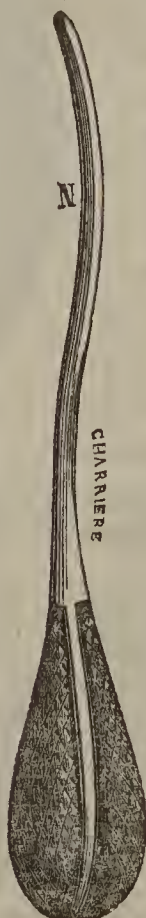


the distance of the os uteri from the os externum is accommodated by the slide, F, and the screw, D.

Fig. 6.



Fig. 7.



M. Valleix conceives that this arrangement greatly facilitated the introduction of the instrument, but he soon found that it was too heavy, and that the projection into the vulva of the handle of the screw, A, B, occasioned considerable inconvenience, and could be borne but a short time. This led him to consult M. Charriere, and the following instrument (Figs. 6, 7, 8), is the result of their efforts.

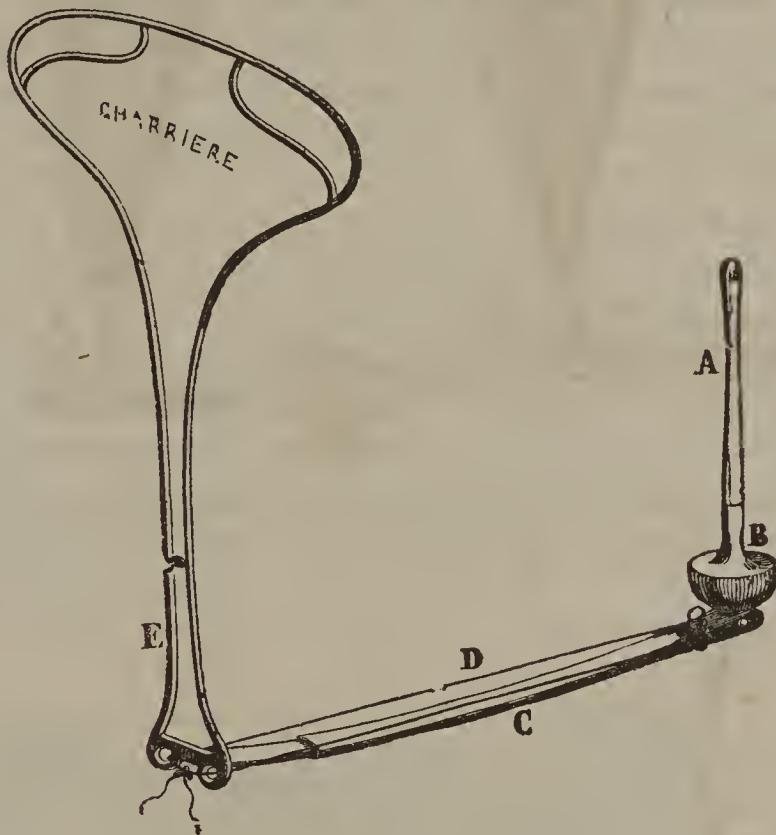
We have here the perpendicular, F, and horizontal, I, branches connected by a joint, H, and extended. The disk, G, is small, and below it are two threads, passing through a hole, I, and by which the two portions of the instrument are ultimately connected. The horizontal branch, M, is hollow, as in Dr. Simpson's instrument for receiving a horizontal branch from the external portion of the instrument.

Fig. 7 is a handle to render the introduction and application of the instrument more easy. The point of the blade is passed into the hollow



branch (Fig. 6, M), and the whole introduced in a straight position into the vagina. Once the point of the uterine or perpendicular branch is introduced through the os uteri, a little pressure backwards will bend the joint of the instrument, and when this flexion is complete we may hear the *click* of a spring, which renders the flexion permanent; then, inserting the horizontal projection of the external portion of the instrument (Fig. 8, D), the threads are to be made fast in two eyes, and we have the instrument complete and *in situ*.

Fig. 8.



It must be confessed that these successive alterations are somewhat retrograde, the latter instrument being much more like Dr. Simpson's than the former: differing from it only in the smaller size of the obturator, the joint, and the ligatures.

So much for the instrument itself, a much more important question remains, viz., its suitability and success. Looking at the peculiar deflexion it is intended to remedy, we cannot deny its mechanical fitness for the purpose. But the question is more than one of mechanical adaptation, and involves not only the consideration of whether the uterus can bear with impunity the presence of such a foreign body, but also, in a wide sense, the question of the extent of uterine mobility in health, which no one has yet tested. For our own part we believe that in women who have borne children, and when the pelvis is empty, there

is a wide latitude to be allowed: that the uterus, in fact, may recline in various directions, and if an examination be made, it will be found so deflected; but this is not disease, nor attended with inconvenience. It is quite possible so to deflect the uterus with the uterine sound, without the patient being conscious of any change<sup>a</sup>. Such a state requires no remedy; and we believe that this class is very large, and constitutes the chief of the cases whose alleged frequency has caused such astonishment.

But either retroversion or retroflexion may certainly be caused by disease, and if the disease still exists, it would appear more philosophical first to cure it, and the cause being removed, the effect will cease. But if it do not, then these cases, we confess, do seem fair subjects for some mechanical contrivance as much as those of prolapsus uteri. Whether Dr. Simpson's instruments be *adequate* and *safe* for this purpose; whether the uterus will bear it, or in what cases it will not, is a matter of experience upon which observers differ. As yet the cases in which it has been fairly tried are too few for positive conclusions; but even if we admit, with Dr. Simpson, that some bear it a long time with impunity, there are other cases which prove that very lamentable consequences may result. The more evidence we can accumulate the better, and on this account we shall lay before our readers the results of M. Valleix's experience, only regretting that so accurate an observer has not given the number of cases in which he tried it.

As a preliminary, M. Valleix always uses the uterine sound, not merely for diagnosis, but to replace the uterus, and especially to familiarize it with a foreign body, and he takes considerable pains to adjust the length of the prong to the length of the uterine cavity. Introduced with these precautions, he states that the instruments are generally very well borne after the first day. Frequently there are colicky pains, and a kind of tenesmus, as though the uterus sought to expel a foreign body, but after a time these cease, and the instrument is borne for eight, ten, or fifteen days, not only without pain, but with a sense of relief. Some patients could not bear the instrument more than from ten to twenty-four hours after the first application. This chiefly occurred in females who had never had children, or who were within a few days of a menstrual period. It was remarked,

<sup>a</sup> We beg leave to direct the attention of such of our readers as are conversant with uterine diseases to this point. We have satisfied ourselves that such a variety of retroversion (not retroflexion) may exist; but we should gladly have our own view confirmed by that of others.



that the introduction of the pessary brought on menstruation before the proper time, and in greater abundance, and with unusual facility.

The length of time which the instrument should be worn M. Valleix found to vary; so long as neither congestion nor pain is produced, it may be safely left in the uterus. He adds: "the females to whom I have applied it, and I apply it every day, have exhibited no injury from its use."

Such is the experience of M. Valleix, and it deserves great weight; although we cannot say that it has removed our objections, we are willing to admit that certain cases do occur in which the instrument may be useful if the uterus is found to bear it. Having said this, however, we must protest against its indiscriminate employment.

It may be in the recollection of our readers, that Dr. Halpin of Cavan some years ago proposed to restore a retroverted pregnant uterus to its normal position by means of pressure made by a bladder, introduced into the vagina, and in one case he succeeded. Very recently Dr. Favrot has submitted to the Académie de Médecine of Paris a proposal to effect the same end by means of a caoutchouc bladder introduced into the rectum, and then inflated by means of an India rubber bottle and tube, with stop-cock, &c.

Fig. 1.

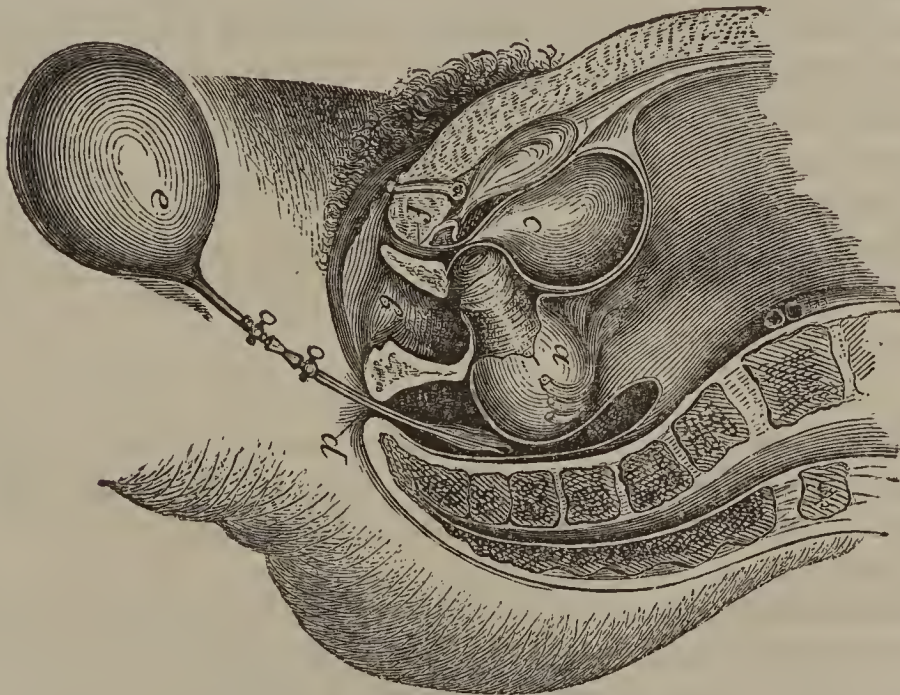
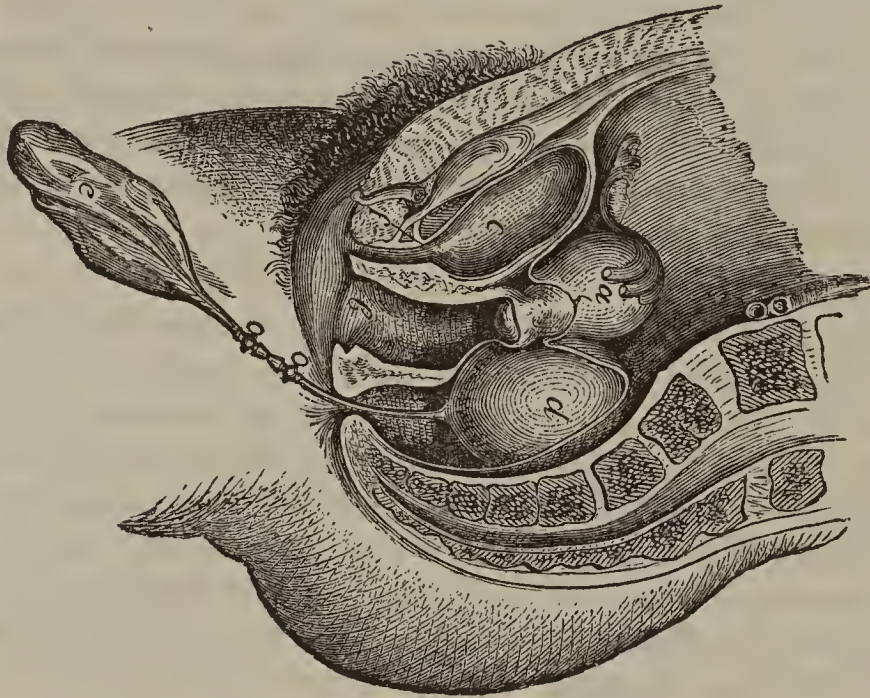


Fig. 1 represents the caoutchouc bladder introduced empty into the rectum by means of a rod, and connected by its stem with the bottle externally, which is full of air. Having been

placed close to the retroverted fundus of the uterus, *a*, and the internal rod withdrawn, the vulcanized caoutchouc bottle is then to be connected with its stem, and the air steadily forced in. The pressure thus exerted may be very considerable, and Dr. Favrot conceives that it will be sufficient to restore the uterus to its proper position, as in fig. 2.

Fig. 2.



The two parts of the instrument are then to be separated, and the internal one left *in situ* so long as may be necessary. The amount of air can be exactly regulated according to the feelings of the patient, and the instrument may be withdrawn occasionally, and re-introduced if desirable.

We do not know whether it has been actually tried, but we cannot hesitate to express our opinion of its ingenuity, and of its apparent adequacy for the purpose of reverting the uterus.

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*On the Diseases of the Bladder and Prostate Gland.* By WILLIAM COULSON, Surgeon to St. Mary's Hospital, &c. London: Churchill. 1852. Fourth Edition.

No work would prove of greater advantage to the profession than one embodying a full and accurate description of the affections of the entire urinary apparatus, including a faithful representation of the characters of the urine in health and disease:—one which, by bringing, within the compass of a volume of no extravagant size, practical information upon all the im-



portant subjects connected therewith, would save the practitioner and the student the time and trouble now expended in reading through an almost endless list of monographs. We possess many valuable works of this nature upon other classes of affections; why should there be a void in this particular department of medicine?

Mr. Coulson's work carries out to a considerable extent the object required, for it embraces a description of the normal and abnormal characters of the urine, with an account of the diseases of the bladder and prostate gland; but affections of the urethra and kidneys receive not the slightest notice from him.

The volume may be divided into four parts. The first treats of the normal characters of the urine; the second of the abnormal; the third of the various diseases of the bladder, with their symptoms, diagnosis, and treatment; and the fourth of affections of the prostate gland.

Now a work of this comprehensive nature must of necessity be chiefly a compilation: to test its value, therefore, by the standard of originality would be unfair. The claim to merit of such a book should, we conceive, rest upon the amount of labour bestowed in the construction of its materials; upon the accuracy of the information culled from other sources; and upon the judgment with which the opinions of authorities are selected. That Mr. Coulson has in great measure realized his claim upon these grounds, we feel it but just to declare. The work has already passed through three editions, and the author is fully justified in bringing out a fourth now, when we recollect the vast improvement that has taken place in our knowledge on many points in urinary pathology since the date of the previous edition ten years since. There is no department of scientific research that has within the last few years been more extensively widened, and has gained greater accessions than the physiology and pathology of the renal secretion. The labours of Bright, Christison, Osborne, Simon, Golding Bird, Bence Jones, &c., have yielded a large amount of valuable instruction, and have given a stimulus to others to explore the same field, still rich with products; while the perfection to which the application of the microscope has lately been brought throws a peculiarly clear light upon the subject, and gives to our powers of diagnosis an accuracy which otherwise they could not have obtained, and which before they did not possess.

The first part of the work requires no particular notice. The second, which treats of the abnormal characters of the urine, the author commences with the subject of its albumi-

nous condition. Simple and easy of application as are the tests for the presence of albumen in the urine, and important as are the conclusions to be drawn therefrom, nothing can be more careless or unscientific than the manner in which practitioners are frequently observed to conduct the investigation. The most junior student knows that heat and nitric acid are the common tests for the presence of albumen; but many practitioners seem to forget that there exist numerous sources of fallacy which, if not attended to, prevent proper conclusions from being arrived at; so that the failure of the test to produce visible evidence of the presence of albumen is no proof of its absence, unless all the sources of error are carefully obviated; while, on the other hand, if similar precautions be not observed, the presence of albumen may be inferred, when, in reality, it does not exist. Mr. Coulson draws attention to these sources of fallacy.

To know that albumen is present is, however, of but partial advantage, unless we can ascertain the source from whence it comes, and this end can, as the author justly remarks, be in a great measure attained by the assistance of the microscope. It is obviously of the utmost importance, as well for the purposes of diagnosis as of prognosis, to be able to decide whether the albumen present in the urine results from disease of the kidney, or whether it is attributable to the admixture of blood or pus which has been derived from some of the urinary passages: and how can this be done unless by the aid of the microscope? When we are enabled, through its instrumentality, to detect the presence of fibrinous casts of the renal urinary ducts in the urine, whatever albumen is found to coexist should be inferred to arise from congestion of the kidney; whereas, if these fibrinous casts are undiscoverable, then the conclusion should be, that the albumen comes from another source. Again, albumen in the urine may, as we have said, be derived from the admixture with it of blood or pus; now not only can the presence of both these fluids be recognised with ease by the microscope, but, by attending to the circumstance of the presence or absence of the fibrinous casts already alluded to we shall be able to decide with tolerable certainty whether the blood or pus has had its origin from the kidney, or from some other part of the urinary apparatus.

The presence of sugar in the urine has been at all times viewed with the greatest interest by pathologists, and many have been the ingenious theories put forward relative to its origin, and various the conclusions as to its treatment deduced. The tests for sugar are numerous, but for our own part we



consider Mr. Moore's the simplest, most easy of practical application, and also as decisive as any other. Mr. Coulson seems to prefer the copper tests of Trommer and Capezzuoli as being more perfect, but thinks, that for the purposes of convenience the employment of yeast is the best, especially as it is an extremely delicate one, being sufficient to detect one part of sugar in a thousand parts of urine.

Any one much in the habit of examining specimens of urine with the microscope must be aware how extremely common is the presence of oxalate of lime in that fluid. A little reflection will render it evident that, in consequence of the great frequency with which this deposit appears in it, its presence becomes of significance only according to the circumstances under which it is found. Many causes compatible with tolerably good health may produce the temporary appearance of oxalate of lime in the urine; but when the salt is formed in large amount, when it is permanent and not temporary in its occurrence, and particularly when it coincides with a prostrate condition of the nervous energy, its presence must be viewed as a symptom of no inconsiderable import. We have no doubt that the chief fertile cause of this production of oxalate of lime in the urine, together with that peculiar condition of the system, termed oxaluria, which accompanies it, is due to a long-continued abuse of the sexual powers. We have met with numberless instances of this kind, and we need hardly add, that for the removal of the oxaluria it is necessary to assail the root of the evil, and not to be content with simply addressing our treatment to the deposit, which is only a symptom of a general disordered state of system. The author makes some useful remarks upon the subject of oxalate of lime in the urine, the substance of which will be chiefly found in the five following propositions, which we quote:—

“ 1. The occasional presence of a few crystals is no indication of disease.

“ 2. The ingestion of aliment containing oxalic acid is often followed by the excretion of oxalate of lime with the urine.

“ 3. The occurrence of a large quantity of oxalate of lime in the urine, if on the preceding day the patient has indulged freely in the use of sparkling wines or ales, is of no moment.

“ 4. Crystals of oxalate of lime are exceedingly common in the urine of those suffering from acute rheumatism, or other diseases attended with the excretion of urate of ammonia.

“ 5. The urine of persons whose lungs are emphysematous, or in whom from other causes imperfect oxidation of the blood is effected, pretty constantly contains the salt in question.

"6. If the latter set of cases be excluded, the constant presence of oxalate of lime in the urine is a valuable sign of disordered digestion, and important as an indication of the treatment to be pursued."

We now enter upon the consideration of that portion of the work which treats of diseases of the bladder: this the author opens with the subject of irritability of that viscus. Irritability of the bladder is, without almost an exception, a symptom or effect of disease, either in some part of the urinary apparatus, or elsewhere in the system, or the consequence of a morbid condition of the urine. Indeed, we doubt much if there is such a disease to be met with as pure idiopathic irritability of the bladder—irritability not traceable to some direct, tangible cause. Many of those cases which Mr. Coulson would consider as "the result of a mere nervous state of the organ, of the same spasmodic nature as that which in other individuals and other parts occasions a constant winking of the eyes or twitches of the muscles,"—are, we feel confident, symptomatic of some derangement which care and attention would discover, or the effect of a highly exalted state of the entire nervous system; nay, more, the irritability is often apparent only in hysterical subjects. The absolute amount of the urine is often greatly increased, so that the frequency of micturition observed is due not to any derangement, idiopathic or symptomatic, in the functions of the bladder, but is merely the necessary consequence of the increased duty imposed upon the organ. The difference between real and apparent irritability of the bladder it cannot be expected should be recognised by the patient, but even the practitioner may, if he does not pay attention, confound the two cases, and be thus altogether misled.

The author points out the various causes of irritability of the bladder; and alludes to one circumstance of much pathological interest connected with it, namely, that while the capacity of the bladder is in all cases diminished, the parietes of the viscus are found increased in thickness only in those in which there exists obstruction in the urethra; "it would, therefore, appear that long-continued irritation produces actual absorption of part of the substance of the bladder."

"Irritability of the bladder may, in many cases, be mistaken for an inflammatory affection of the organ. The distinction, however, is easy, and of great practical importance. If the disease has recently occurred, it may be distinguished from acute inflammation of the bladder by the absence of pain and of those severe constitutional symptoms which characterize the latter disease. If it has been of very long standing, it may be distinguished from chronic inflamma-



tion of the bladder by the general health suffering but little; whereas, in chronic inflammation, the constitutional powers sooner or later give way."

The points of differential diagnosis in the foregoing quotation we cannot consider as very accurate or conclusive. As to chronic inflammation of the bladder, the feature by which it is distinguished from simple irritability of the organ is by the secretion from the mucous membrane of muco-purulent matter, and in the still more advanced stages by the circumstance, also, of the urine being alkaline. If by the term "inflammation of the bladder," the author means to imply inflammation of the muscular coat only, then the latter symptoms to which we refer will not be present; but we deny that inflammation is ever confined to that structure: we feel confident that the mucous coat is invariably engaged in the inflammatory action, no matter what other coat may be involved, and this Mr. Coulson himself admits, as will be presently seen.

The state of the health can form no uniform guide, for the early stage of chronic inflammation of the bladder, before that period arrives at which the urine assumes a decidedly alkaline character, is, we think, unaccompanied most frequently by any palpable constitutional derangement.

The next subject considered is paralysis of the bladder, into the account of which the author goes at considerable length. We cannot afford space to follow him through his observations upon this disease; but we would advise the reader of the book itself to direct particular attention to this part. The sources of paralysis of the bladder are numerous; and to know its real cause is, with a view towards treatment, most essential, while nothing is often more difficult than to ascertain that cause.

Acute inflammation of the mucous coat of the bladder is one of the most serious affections to which that organ is liable. The intense pain, the great intolerance of the viscus often to hold even an ounce of urine, the depressing influence of the affection not only upon the body but upon the mind, render a case of this affection truly distressing, and stimulate us to exert all our ingenuity to alleviate the sufferer's state. But it is the prospective dangers which attach to this affection that give to it a formidable character. We refer to gangrene and ulceration of the membranes, and extension of inflammation to the kidneys. As long as the ulceration is confined to the mucous membrane, and does not extend to the other structures of the bladder, the case is comparatively free from serious or disagreeable results; but when it reaches so deeply as to pass through the muscular coat, there is danger of extravasation of urine from rupture oc-

curring, or there is the chance of a fistulous communication being established between the bladder and some of the intestines. Mr. Coulson considers that "ulceration between the bladder and rectum is not a very rare occurrence," and he gives two cases in which he had a post mortem opportunity of ascertaining the exact state of the parts. In one there was a communication between the fundus of the bladder and the colon; in the other, the bladder communicated with the rectum, colon, and ileum through the medium of a channel, which was in fact a fœcal abscess.

As to the treatment of this affection, we cannot agree with the author, that, "excepting at its commencement, mercury is not of use in this form of inflammation;" for we have found no remedy so efficient, in what may be termed the subacute stage, as mercury. When it is combined in the form of blue pill with extract of conium, and, accompanied by the application of blisters to the sacrum, is steadily persevered in for some time, the good effects arising from it are often surprising. In the very early stage, when severe pain and distressing irritation of the organ constitute the more prominent and urgent symptoms, local depletion and anodynes should, of course, be the remedies upon which chief reliance must be placed; but immediately upon the abatement of the very acute symptoms, there is no plan we know of better calculated to prevent the inflammation merging, as it is so apt to do, into the chronic form, as the combination above recommended.

Chronic inflammation of the mucous membrane of the bladder is one of the most intractable and unsatisfactory affections we can be called upon to treat. It may be the sequel of the acute form we have just noticed, but most usually it arises slowly as the result of stricture of the urethra, stone in the bladder, or enlargement of the prostate gland. Besides these there are many other exciting causes of this affection. Mr. Coulson observes:—

"There are some habits apparently more predisposed to this affection than others: such are those of irritable scrofulous temperaments, with fair skin, and tendency to cutaneous affections, more especially if accustomed to live freely, or given to venereal excesses, or have suffered from syphilitic affections, or gout. In such individuals, exposure to cold seems the most frequent exciting cause of this affection, and those who actually labour under it generally suffer much more severely in cold weather. Gouty persons are very subject to this affection."

We fully agree with the author in the advantage of injecting acidulated lotions in cystirrhœa, accompanied by phospha-



tic deposit in the urine. We have in some instances employed them with marked benefit; and if only due attention be paid to the accompanying circumstances of the case, and to whatever symptoms of an unfavourable character may result from the adoption of the plan, no mischief need be apprehended from it. We are, however, far from coinciding in the propriety of Professor Lallemand's method of treating chronic inflammation of the mucous membrane of the bladder by the application of the solid nitrate of silver. Such a plan should be strongly condemned as both unscientific and dangerous. In the first place, it would, we think, be physically impossible, be the bladder ever so contracted, to apply the caustic equally over the surface of the membrane, and if the cauterization be limited to certain patches only, we cannot see of what advantage it could be, even allowing that the method was unobjectionable as regards its results. But in the second place, if it were possible to effect a complete cauterization of the membrane, the consequences might be fearful, not only from the extent of surface subjected to the action of the caustic, but from the obvious impossibility of measuring the degree with which it must fall on some parts more than upon others. There is, in fact, no necessity of adopting so imperfect and dangerous a method of applying the nitrate of silver to the interior of the bladder; this end can be much more effectually and safely attained by injecting solutions of that salt, by means of which a uniform action upon the membrane can be insured, and an undue effect be prevented.

We have frequently seen injections of nitrate of silver employed in these cases, and have witnessed the happiest results from their judicious use, even in cases in which pain was a prominent feature. As a general rule it is better to commence with a weak solution, about two grains to the ounce, and to increase gradually until it attain caustic properties; but it will seldom be found necessary to increase the strength of the solution beyond that of a powerful astringent. As to the subject of using injections containing the balsam of copaiba, we can give no opinion, as we have never known the plan to be put in practice, but we have seen excellent effects follow the internal administration of that medicine, particularly when combined with alkalies.

The next subject upon which Mr. Coulson touches is inflammation of the muscular structure of the bladder, by which he understands that the inflammation is confined to *that* part of the organ only. We have already expressed it as our belief that inflammation of the muscular coat is never met with as an

isolated affection—that inflammation of the mucous membrane is always allied with it; and in this view we are borne out by Howship, Boyer, Johnson, and by the author himself. Even Mr. Prout says: “I am quite unacquainted with, and indeed doubt, the existence of the commencement, and particularly the limitation of ordinary inflammation to the muscular structure of this organ.”

“Now, the fact I take to be this—inflammation may confine itself to the mucous tunic, or it may limit its action to the peritoneal covering of the bladder; but with respect to the muscular coat of this viscus, I am of opinion that it is seldom, perhaps never, exclusively the seat of inflammation, if we except those cases in which abscesses form between the serous and muscular coverings. Morbid anatomy proves to us that inflammation may arise in this situation, and that the walls of the organ become thickened, and pus is secreted in one or more cysts, which in course of time burst through the mucous membrane and open into the vesical cavity. The muscular structure in these spots is wasted and in great part destroyed, a few stray fibres only being found about the walls of the abscess. But perhaps it would be more correct to regard the areolar tissue, and not the muscular fibres, as the seat of inflammation; in short, to class the affection as we should class an abscess occurring in any other situation.”

It is quite unnecessary, however, to discuss the abstract question as to the possibility or impossibility of the limitation of inflammation to the muscular tunic of the organ, since in practice the knowledge of the fact could avail but little. Without denying the possibility or even the probability of inflammation being confined to the coat, it must be admitted that to recognise the affection, when so limited, and to discriminate it from other affections of the organ, would require our powers of diagnosis to be raised to a pitch of refinement which, in the present state of knowledge, they cannot possibly possess.

We are reluctantly compelled to pass by without notice the various subjects of malignant diseases of the bladder: its abnormalities, wounds and injuries, and hernia of the organ; but we must proceed to consider the important subject of calculus, with the two operations for its cure, lithotomy and lithotrity. The author treats of this subject under four distinct heads:—1st. The chemistry of urinary concretions; 2nd. The causes of stone; 3rd. The symptoms; and 4th. The operations for the removal of the stone.

Under the first head much valuable information, which is evidently taken from the best sources, will be found condensed.



“The chemical constituents of calculi may be conveniently divided into two classes, the first containing those which sometimes form entire calculi in a nearly pure state; the second those which may be viewed as adventitious constituents, some of which are problematical.

“A.—*Forming entire Calculi or Laminæ.*

1. Uric Acid.
2. Uric or Xanthic Oxide.
3. Urate of Ammonia.
4. Cystic Oxide, or Cystine.
5. Ammoniaco-Magnesian Phosphate.
6. Oxalate of Lime.
7. Phosphate of Lime.
8. Carbonate of Lime.
9. Mixed Phosphate of Lime, and Phosphate of Magnesia and Ammonia.

B.—*Existing in small quantities associated with the preceding.*

10. Urate of Potass.
11. ——— Soda.
12. ——— Lime.
13. ——— Magnesia.
14. Organic matter, fat, extractive albumen, vesical mucus, blood.
15. Carbonate of Magnesia.
16. Silica.
17. Oxide of Iron (?)
18. Benzoate of Ammonia (?)
19. Oxalate of Ammonia (?)
20. Phosphate of Iron (?)
21. Hydrochlorate of Ammonia (?)
22. Urea (?)
23. Clay Mica (??)”

The causes of stone, both the immediate and remote, are, notwithstanding the advancement of physiological science, and the improved state of organic chemistry, still involved in deep obscurity. Could the difficulties in the investigation of its remote origin be cleared away, so that, by examining the chemical product, we should be enabled at once to ascertain the remote cause which gave it birth, and thus to apply our remedies to the “*fons et origo mali*,” our treatment would then, indeed, be based on science, and the advantages arising from it would be inestimable. But how stands our knowledge in this respect now, even when physiology and organic chemistry have acquired so advanced a position? It is true, we can readily recognise the presence, for example, of uric acid or the

triple phosphate in the urine, and can, by the administration of alkalies in the one case and acids in the other, remove the abnormal product: even more, we may know, through physiology, the source of the particular chemical product; but here our knowledge and our therapeutic powers end; we are utterly ignorant of any means by which to influence the excessive production of those chemical substances which are the result of the disintegration of particular tissues. We may know that uric acid, for instance, is the product of the metamorphosis of muscular tissue; but by what means have we it in our power to control the action by which the product is generated in excess? The subject is one of great interest not only in a speculative but in a practical point of view; and not until the line that limits our investigations, and the veil which obscures our views, be removed by the advent of a more enlightened physiology, will our therapeutic capabilities become truly scientific and efficient, or those discrepancies in the doctrines of organic chemists be abolished. Whoever is desirous of learning the views of the best authorities upon this subject will consult the article upon the "causes of stone," in Mr. Coulson's work, with advantage.

The symptoms of stone are, however, much more important for the study of the practical surgeon.

Though the rational symptoms are merely conjectural, still, when well marked, they seldom leave any doubt as to the nature of the diagnosis; but they are subject to so much variation and to so many sources of deception, that nothing but the sensible sign can be considered satisfactory, as it evidently is the only conclusive proof of the presence of a calculus. We have often known the symptoms of pain and irritation to be almost absent, even in cases in which the calculus has not been encysted. The case freest from pain we ever witnessed was one in which, strange to say, the calculus was not only of large size, but was remarkably spiculated, being in that condition which would be supposed to be best calculated to irritate the bladder. Dr. Gross, as the author observes, remarks upon the fact that spiculated calculi often give rise to very little suffering; and he attributes this to the circumstance, that "the spines admit of the more ready passage of the urine, in the same manner that a very rough body, lodged in the bronchial tube, will occasionally cause less distress than a smooth body, as it produces less obstruction to the entrance of the air." The presence of blood in the urine may be due to many causes besides calculus in the bladder.

The sudden stoppage of the urine in its flow is, perhaps, the



most decisive symptom of stone; still it is by no means unequivocal, as the same effect may be produced by a particular condition of the middle lobe of the prostate gland. In fact, all the rational symptoms of stone, both individually and collectively, are open to deception; accordingly, we must rely altogether upon the result of the expedient of "sounding;" it becomes, therefore, a matter of the greatest importance to conduct this test with the greatest accuracy. Mr. Coulson makes many useful and practical observations upon this subject, which may be borne in mind with advantage.

"A hard stone, as the oxalate of lime or the lithic acid calculus, rings when struck, and communicates through the instrument a peculiar sensation. A soft calculus, composed of the phosphates, conveys a more equivocal feeling to the operator; the instrument strikes against a hard unyielding substance, but the sound is less sharp, or almost inaudible. The size may be partly guessed by marking the extent of hard surface over which the sound passes, and the readiness with which the calculus is found in all conditions of the bladder. But considerable experience is requisite to form an accurate opinion upon the subject, unless we choose to introduce the instrument used in lithotrity, in which the amount of separation of the blades is indicated by a graduated scale on the handle. The stone may thus, if requisite, be measured in every direction; but, for my part, I think it, as a general rule, a very unnecessary proceeding, and subject to the risk of breaking the calculus. The larger and harder the stone, the more audible in general the sound communicated by the instrument. It is quite different from the grating sensation indicative of a fasciculated condition of the bladder, and may often be heard at the distance of several yards. The introduction of the finger into the rectum for the purpose of lifting the surface of the bladder behind the prostate, though very often practised, is requisite chiefly in old persons."

As to the circumstance of a stone of large size being present, and still eluding the sound, though managed in the most dexterous and persevering manner, we have met with many such instances. We have recently employed lithotrity successfully in a case in which the difficulty in detecting the calculus was so great, that we laboured under the impression it was one of very small size, until the contrary was proved by actual measurement. In fact, it was hardly ever touched by a sound: the only plan by which we could repeatedly assure ourselves of its presence was by the introduction of a silver catheter, and drawing off the urine as the patient stood—the result being, that as the bladder contracted to expel the last of its contents, the stone was driven against the instrument and thus became evident. In a second case which is at present

under our care, though the calculus is of considerable size, as proved by measurement, it can never be felt until the bladder is injected, or the finger introduced into the rectum, and then the sound employed must be almost straight. In other instances, the stone will be detected better when the bladder is empty.

We fully coincide with the author as to the impropriety of resorting to the supra-pubic operation of lithotomy in almost any case. Calculi of immense size have been removed from the bladder by the lateral operation; and we conceive it would be preferable to drill or crush a large stone, and then withdraw the broken fragments, by opening into the bladder through the perineum, than to resort to the plan of extracting the calculus entire through an opening made above the pubis. With respect to the extent to which the prostate gland should be divided, that comes to be a question altogether of degree. It is true that much danger of extravasation of urine and consequent diffuse inflammation arises from carrying the incision too freely through the gland and along the neck of the bladder; but if the extent of the incision be not fairly proportioned to the size of the stone, so that it can be seized and extracted with ease, the urethra may be torn through in the efforts to divaricate the blades of the forceps, and the delay and the fruitless attempts to accomplish the aim of the operation consequent upon an inadequate incision, must inflict an incalculable amount of mischief. As far as our experience goes, we think that the effects of division of the prostate gland have been somewhat exaggerated; still we are far from inculcating the propriety of cutting one line's breadth beyond what is absolutely requisite in the performance of the operation.

The next subject considered in the work is lithotrity, after the description of which the author contrasts the merits of this operation with those of lithotomy. We regret to find that, in the mention of a number of names in connexion with the subject of lithotrity, that of an Irishman, highly distinguished for his ingenious inventions in this as well as in many other departments of surgical mechanism, has been altogether unnoticed. We allude to Mr. F. L'Estrange, of this city. It may be that Mr. Coulson, in common with most other English authors, is ignorant of the vast improvements which the inventive genius of Mr. L'Estrange effected in lithotritic instruments, when as yet they were clumsy, imperfect, and unscientific; but it is for us to correct whatever erroneous impressions exist, and to guard our countryman from being robbed of or denied, directly or by implication, merits to which he is justly entitled. We can inform Mr. Coulson that the credit of being the first to ap-



ply the principle of the screw, as a means of crushing calculi in the bladder, and of designing a method to remove the detritus, is justly due to Mr. L'Estrange of Dublin. The screw, as at present used, may be the invention of Mr. Weiss, and the slit in the curved portion of the fixed blade of the lithotrite, made with the view of allowing the detritus to escape, was without doubt the design of Mr. Oldham; but the first who applied the principle of a crushing force by means of a screw, and who thought of contriving a method of ridding the instrument of detritus, which he did by means of a wire stilet passed between the blades, was Mr. L'Estrange. Another very ingenious and highly important addition made to these instruments by the same surgeon is that of a latch, which, when connected with the handle of the lithotrite, the screw being revolved a few turns backwards, enables the blades to be readily freed should they become locked or otherwise fixed in the bladder during an operation, as has in some cases occurred. The imperfections of Baron Heurtoloup's instrument must have been evident to all; but it was the quick mechanical perception and ready powers of our countryman that first stripped them of the rudeness of their construction, and of the pain and danger attendant upon their use.

We confess we are not a little surprised at the manner in which the author gives directions for the performance of lithotripsy, as far as the manœuvres for catching the stone are concerned. Let him speak for himself.

“The instrument being fairly in the bladder, the next step of the surgeon is to find the stone. The blades of the lithotrite being kept closed, he must first move it in a sweeping direction, with the convexity downwards, from before backwards, along the *bas-fond* and the posterior surface of the bladder; then he must draw it back, the convexity being turned to the right or to the left. Thirdly, the instrument must be again pushed from before backwards to explore the side which has escaped examination. Fourthly, the point must be directed downwards to the space immediately behind the prostate, and upwards behind the symphysis pubis. The instrument should then be carefully rotated that the point may come in contact with the foreign body.”

How different these directions from the simple and gentle plan recommended by Sir Benjamin Brodie, who says, “it is neither necessary nor prudent to explore the bladder with the forceps, with a view to ascertain the exact situation of the calculus in it.”

Does Mr. Coulson imagine he has a tough leather pouch to deal with, instead of a delicate, highly sensitive organ, which

is sure to resent the slightest rudeness upon the part of the surgeon? If such be the method of performing lithotrity, no wonder for many, even at the present day, to be prejudiced against the operation.

We have now arrived at the fourth part of the work, in which the author treats of diseases of the prostate gland: acute inflammation of the organ, the chronic enlargement of it, malignant degeneration of its structure, and concretions within its ducts, are considered in consecutive order. The observations, however, upon these several subjects are too short to embody a sufficient amount of information for the student: moreover, we have recently noticed the subject in our review of Mr. Adams' work.

In concluding our notice of Mr. Coulson's fourth edition, we have but to reiterate the opinion enunciated in the review of his third, which was published in the twenty-second volume of our former series, that "it presents a clear, well-arranged, well-selected resumé of the labours of others, interspersed with so much of his own observations and opinions as show him to be practically conversant with the diseases of which he treats," adding, that it is now carefully brought up to the present advanced state of our knowledge on the subject.

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*Medical Lexicon; a Dictionary of Medical Science, containing a Concise Explanation of the various Subjects and Terms of Physiology, Pathology, Hygiene, Therapeutics, Pharmacology, Obstetrics, Medical Jurisprudence, &c., with the French and other Synonymes. Notices of Climate and of Celebrated Mineral Waters; Formulæ for various Officinal, Empirical, and Dietetic Preparations, &c.* By ROBLEY DUNGLISON, M.D., Professor of Institutes of Medicine, &c., in Jefferson Medical College, Philadelphia, &c. Eighth Edition. Philadelphia: Blanchard and Lea. 1851. 8vo. pp. 927.

WE cordially greet the appearance of this new edition—the eighth—of Dr. Dunglison's Medical Lexicon, a miracle of labour and industry in one who has written able and voluminous works on nearly every branch of medical science. There could be no more useful book to the student or practitioner, in the present advancing age, than one in which would be found, in addition to the ordinary meaning and derivation of medical terms—so many of which are of modern introduction—concise descriptions of their explanation and employment; and all this and much more is contained in the volume before us. Differ-



ing completely from Dr. Hooper's Medical Dictionary, it is, as its name indicates, rather a Lexicon, and is therefore almost as indispensable to the other learned professions as to our own: in fact, to all who may have occasion to ascertain the meaning of any word belonging to the many branches of medicine. From a careful examination of the present edition, we can vouch for its accuracy, and for its being brought quite up to the date of publication: the author states in his Preface, that he has added to it about *four thousand* terms which are not to be found in the preceding one.

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*Lettres sur la Syphilis, à M. le Docteur Amédée Latour, Rédacteur en chef de l'Union Médicale.* Par M. RICORD. Paris: 1851<sup>a</sup>.

As regards the treatment of chancre, M. Ricord first speaks of cauterization, for which he is a most decided advocate; he cannot conceive why those who are armed with the hot iron and caustics against the sting of a viper or the bite of a mad dog, fear the same remedies when they have to deal with the venereal poison. "What results are we to expect from the cauterization of chancres? 1st, The prevention of constitutional infection; 2nd, To hinder the formation of buboes; 3rd, To oppose the progress of the primary sore, of which the consequences are sometimes more or less deformity, or even the loss of some important organ; 4th and last, To destroy the nucleus of contagion." Those who believe that constitutional contamination always precedes the chancre affirm that it is not only useless to cauterize it, but that it is dangerous, as the chancre is an emunctory by which the system throws off the virus. If this opinion had any foundation, it would consequently follow that not only would it be imprudent to destroy a chancre, but that, on the contrary, we should preserve, spread, and multiply it, that we might open to the virus more numerous and more easy gates of egress. "This should be their logic; but we know that these logicians do not so act, and happy is it for their patients that they do not make the conclusion follow their premises."

Nor is the difference great between this school and that which regards chancre as at first a local disease, but upon which secondary symptoms must inevitably follow. These profess that the chancre is the source of the infection, of which the

<sup>a</sup> Continued from vol. xiii. p. 152.

activity is in proportion to the number, extent, and duration of the primary sores. But, they say, do not cure the primary sore too soon; it will be a guide to direct the general treatment, and will oblige the patient to follow the rules laid down. "What are we to think of such precepts? what satisfaction to know, each day, that a poor patient carries about a chancre which will cause the other symptoms you will have to treat at a later period. The primary sore helps, they say, to direct the depurative treatment; but we know it is not a part of their system to suspend the general treatment until the chancre has been healed, even by their method. This treatment is the same in all cases; it is a fixed dose of mercury, administered for a determined time, no matter what may have been the character of the primary affection; no matter what may have been its duration. And then what shall be said of their prudence, to allow a chancre to progress even almost to amputation of the penis, forsooth, that a patient may be induced to follow his prescribed course of treatment? Is not such precaution worthy of admiration!" Cauterization has been accused of being the frequent cause of bubo, and the meagre statistics of Bell have been brought forward to prop up an assertion which a single visit to a venereal hospital would annihilate. On the other hand, the law which can be easily verified is, that there are more buboes where caustics have not been used than where they have. Cauterization does not always prevent the formation of buboes; but it never causes them to be specific; nature may often prevent this. It may, too, prevent constitutional contamination, and never favours it.

M. Ricord is well aware that many cases have been cited to prove the false doctrine which he here endeavours to combat; but they all belong to that class, a specimen of which may be found in Van Swieten, where a patient, affected for more than a month with a primary sore, had it cauterized, and was attacked with secondary ulceration of the throat as a consequence of the pretended repercussion!

Chancre at its commencement is absolutely a local affection, which may remain definitively local. It may undergo a spontaneous cure, or may be cured by local treatment; and it is only after a certain period of duration that it takes on certain forms, which may be more or less troublesome, and which may be productive of immediate or secondary symptoms. "If we destroy chancres at an early period; if we make them abort in the first moments of their existence, from the first to the fourth or fifth day of their appearance,—most undoubtedly we prevent these accidents. If we do not see them in time,



and consequently cannot successfully count on the abortive treatment, cauterization will, however, at least abridge the duration of the primary ulcer, and so important and efficacious are its effects, it should be laid down as a precept, that any erosion after exposure should be instantly cauterized." But to derive the full benefit of cauterization as an abortive and preventive against all ulterior consequences, many conditions are necessary. In the first place, we are not to reckon the age of the chancre from the time when its existence was first perceived by the patient, but from the moment of exposure to contagion. In acting thus, and destroying the chancre before the fifth day, the patient escapes from consecutive symptoms. That we may rely upon cauterization as an abortive, we must not be content with merely touching the ulceration with any description of caustic, but it is necessary that we should find on the separation of the eschar, in place of the virulent ulceration, a simple wound; otherwise our cauterization is of no avail. It is owing to imperfect cauterization, or from its being practised at too late a period, that symptoms supervene which we have no right to impute to it. In fine, if buboes already exist, if the chancre is indurated, if the constitutional affection is established, and, moreover, if secondary symptoms have already existed, it can only serve to modify the primary sore, to hasten the period of reparation, to repress superabundant granulations, to hasten the cicatrization, and shorten the duration of the ulcer. It is more especially in artificial inoculation that we can study the abortive effects of cauterization, and its neutralizing power. "It is also important to be aware that, once a primary sore has been made with an instrument charged with virulent pus, or the morbid poison may have penetrated the tissues by any other means, not only are simple lotions insufficient to prevent contagion, but it cannot be arrested, even by the application upon the contaminated part of any of the different agents which are capable of neutralizing the virus, when mixed with it, before inoculation. These substances can only destroy the *syphilitic seed* when it is out of the soil, before it has been sown, but, once sown, they are impotent to hinder its germination. It is only to cauterization or to excision that this power belongs." Numerous experiments have been made upon the ulcers of artificial inoculations at the moment of their formation, by the application of the plaster of Vigo, as has been recommended in the abortive treatment of small-pox, or with lint spread with strong mercurial ointment, but the inoculated virus progressed all the same; M. Ricord never

could arrest the development of chancre but by the destruction of the contaminated part.

It must also be recollected that, when the pustule is formed or ulceration exists, the virulence is not contained solely in the secreted pus,—that it is not even limited by the diphtheritic layer which covers the chancre; for if the ulcer be washed, the pus that it secretes be removed, even if the pseudo-pyogenic membrane be destroyed, it is reproduced with all its specific power. “There is, then, a certain distance, *a sphere of virulent activity*, whose rays are in proportion to the extent and duration of the ulceration.” It is consequently very important in practice that the effects of the caustic should pass beyond the field of specific inflammation which it is wished to destroy. Chancre being surrounded by healthy structures, to what extent, then, should cauterization be applied? The exact dimensions are difficult of definition; but in the author’s experience, it should be double the extent of the ulceration, and penetrate through the thickness of all the tissues. It can easily be understood, “that the extent of certain ulcerations and their particular seat do not always allow of the practice of this rule; hence we often fail; moreover, if we use the nitrate of silver, whose action is very superficial, and is, therefore, only applicable to recent and superficial cases.” The Vienna paste, M. Ricord says, is the best caustic, and with it he has never failed in destroying the pustule of inoculation from the first to the fifth or the sixth day. A single application is sufficient; and almost always it forms a dry eschar, which is detached gradually from a cicatrix which forms beneath. If the eschar fall too soon, or is thrown off by suppuration, a simple ulcer results. “The arsenical paste has also afforded satisfactory results; but it should be employed in a positive manner, that is, “allopathically,” as it has failed when used “homœopathically.” The actual cautery is, perhaps, the best, were it not for the dread with which it inspires patients, and were we reckless in the use of chloroform.

Our author, in consequence of the good results which, both in Belgium and England, have followed the application of the solidified nitric acid, is at present trying its effects not only in phagedænic chancres, but in those of the simplest form, with the intention of causing them to abort; and, from a great number of cases in which he has had perfect success, he concludes that by it we can neutralize the poison without being obliged to destroy so great a quantity of tissue as with other caustics: its action, however, is very painful—the pain remains for a longer time than after the use of the Vienna paste; and we are ge-



nerally obliged to make many applications at intervals of two or three days, especially if the ulcer be of some extent. In fine, no matter what caustic be employed, we must repeat its application as often as the fall of the eschar exposes an ulcer with the uneven surface-bottom of progression; at a later period we should employ a caustic of a mild nature, with the sole intention of hastening the cicatrization. Hunter, who was a partisan for the use of caustic, also recommended excision; and M. Ricord is of opinion that we should always excise the nymphæ when too prominent, if they are the seat of primary ulceration;—likewise, if a long prepuce is the seat of the disease, and the diseased part can be entirely removed, it should be excised. Should the seat of the chancre, however, not allow a sufficient portion beyond the diseased structure to be removed, recourse should be had to the cautery.

Cautery and excision are both useless in the case of indurated chancre; and even excisions performed at the earliest period of specific induration have never hindered constitutional contamination. In all cases, no matter what means may have been employed for the destruction of a chancre, we should never neglect to pay attention to any other symptoms which may present themselves.

M. Ricord next proceeds to the consideration of buboes, first denying their existence as a primary symptom. "Can bubo, regarded as a venereal symptom, be developed without any other symptom having preceded it? Can it be the first consequence of contagion from an impure connexion? This opinion, which had its origin in the times of mystery, upon what is it based? What proves the truth of it? Analyze what has been written on it, and you will find false analogies, errors in diagnosis, ignorance of the laws of evolution, and their possible consequences." Contact, provided that it was a suspicious one, has been given as its cause, no attention being paid to the greater or less space of time which elapsed before the appearance of the bubo. If the simple contact of virulent matter upon undenuded surfaces can occasion a bubo, without giving rise to any previous symptom, primary bubo, admitted by its advocates as of rare occurrence, should, on the contrary, be most frequent; for the cases in which non-excoriated parts come into contact with diseased surfaces are sufficiently numerous. It has been urged that other substances can enter the economy without abrasion of the surface. "But if mercury does so, will caustic potash? Who has ever seen contamination from a dead body without abrasion? Who has ever seen the saliva from a mad dog so act—or the venom of the viper? Who has ever

seen bubo follow small-pox or cow-pock, where their specific pustules had not been present? Let us not plead with false analogies. If certain causes have a special manner of action, we do not say all must act in the same manner. It is thus they are distinguished; and syphilis, also, has its specific mode of action. It does not penetrate without lesion of surface.

“Writers, who admit the existence of primary bubo, say they have met them in patients who suffered neither from blennorrhagia nor chancre; they have all observed some cases. Bell has seen perhaps twenty, when he ought to have seen hundreds, had they any real existence. Lagneau, in imitation of those who have preceded him, gives some observations upon them, and adds that examples of them are always to be found in the hospital for Venereals. No doubt, because there are always at this hospital a number of patients pretending to have primary bubo.

“It is curious that in the history of primary buboes, their advocates have never cited an example of their being found in any other region than that of the inguino-crural, with the exception of Dr. Schals, who mistook an enlarged gland in the axilla, consequent upon a whitlow, for a bubo arising from the absorption of blennorrhagic vapours, through a recent cicatrix upon the finger. Nor have we any mention of submaxillary buboes arising from impure kissing! No symptoms, in fine, have been given whereby a primary may be diagnosed from a secondary bubo.”

Having denied the existence of primary bubo, M. Ricord proceeds to explain what he understands by a venereal bubo. In the widest acceptation of the word, venereal symptoms, virulent or not virulent, chancre or blennorrhagia, may give rise to sympathetic buboes, which sympathetic buboes are essentially inflammatory in their nature, and ordinarily attack only a single superficial gland. They are, in general, obedient to antiphlogistic treatment; and in the cases in which they suppurate, they never furnish an inoculable pus. They alone accompany a blennorrhagia when the blennorrhagia is not itself sympathetic of a urethral chancre. “So that it may be laid down as an axiom, *that a blennorrhagia which in its course has never furnished inoculable pus, never gives rise to a virulent bubo.*”

But those sympathetic—those inflammatory buboes, which so many causes may give rise to, such as cauterization improperly used, or any other irritant, do not consequently constitute a special symptom. The venereal disease is not the cause, and they are only complications of it. The specific buboes, distinct from other glandular swellings, can only arise from



virulent venereal affections—from true syphilis. They are the consequence or result of constitutional infection, and constitute two classes perfectly distinct, and very important to be recognised. The former contains two varieties almost always confounded with each other by most writers on syphilis. First, mediate or consecutive bubo which follows upon unindurated chancre and its different phagedænic varieties. This form of bubo, the result of absorption, is not pernicious to the constitution. Every unindurated chancre does not indubitably give rise to it, and it may even be said that there are more unindurated chancres in which bubo does not appear than otherwise. These buboes are the terminations of the *direct* lymphatics, whose orifices or extremities are bathed in the pus of the chancre, either at the opposite or on the same side, when these vessels cross the median line. This relation of the lymphatics is requisite, and when it does not exist, there is no bubo. This will explain their frequent attendance upon chancre of the frenum, and the total exemption from them of even numerous inoculations made upon the upper part of the thigh.

The bubo attendant upon unindurated chancre not only never precedes it—a *circumstance which ought often, or at least sometimes to occur, if it could be developed without the existence of chancre*—but appears ordinarily after the first, or in the course of the second week; and in certain circumstances, at a much later period, even after months or years, provided the primary ulceration still preserves its specific character. Such was the case in a patient of our author's colleague, M. Puche, in whom it made its appearance after three years of serpigenous ulceration. The law being that it is only when the ulceration, sooner or later, encounters the peculiar relation of parts, or when they have not been destroyed by its progress, that the virulent pus passes into the lymphatic vessels, which carries it direct to the glands, without being themselves infected, or causing infection in its transit. “In non-indurated chancre, be it apparent or concealed in the urethra, in the anus, in the vagina, or in the mouth, the bubo affects, in general, only a single gland, if there be but one chancre, and it is the superficial glands which are attacked; but this division of superficial and deep-seated is by no means applicable to virulent buboes. Bubo from virulent absorption, symptomatic of non-indurated chancre, is inflammatory, and in general very acute; it mostly suppurates.”

Whether virulent pus furnished by a chancre at the specific period is arrested in a lymphatic, or arrives at a gland, it constitutes a species of inoculation, which, in consequence of cer-

tain dispositions, may give rise to symptoms analogous to those from which it has emanated; that is to say, to chancres of the lymphatics or the glands, with a tendency to enlarge and suppurate. But in this *intra-lymphatic* inoculation by absorption, if it may be so expressed, there occurs, as in inoculations of the skin and the mucous membranes, a *common* inflammation of the neighbouring parts; and whilst the lymphatics and the contaminated glands run their course to specific suppuration, the surrounding parts furnish simple pus only. "These two layers—so distinct, and at first so independant of each other, so easy to be comprehended—have not always been recognised; they have different properties, as has been explained, and thus it can be understood why the Culleriers, both uncle and nephew, maintained that the pus of buboes was not inoculable. In short, if on the day a bubo is opened, in which the pus has not been allowed to remain too long, that which escapes first be employed for inoculation,—that is to say, the pus of the phlegmonous layer,—the result will be negative; whilst, if the matter be taken from the deeper layer, viz. the virulent pus furnished by the glands, the result is positive." M. Ricord has met with cases in which the infected glands formed a sort of virulent cyst, dissected and exposed by the phlegmonous suppuration. The pus surrounding these cysts might be inoculated without any result, whilst if the pus contained in them was employed, the result was specific action. When a virulent bubo is opened at a late period, the pus of the gland is effused amongst the phlegmonous pus, and having had time to become mixed with it, just as if it had been open for a long period, the pus which it furnishes is inoculable.

Hunter has already stated that the virulent pus of a bubo, caused by absorption, is identical with the pus of chancre, and is inoculable like it; and that the bubo, in such cases, is a glandular chancre, contagious in the same degree as any other chancre.

"But it is a curious fact, that virulent *primary* pus is not met with beyond the first glands in direct connexion with the chancres, which have been the cause of their contamination,—never in the deep glands, in the lymphatics which spring from them, or in their branches. There is a barrier that the primary pus has never passed. It is experiment, it is artificial inoculation that has taught this, not now displeasing to those who heretofore so calumniated it. Again, where there is any possibility of doubt, that it is the pus from the bottom of the abscess which causes the specific ulceration of the lips of the opening of the bubo, whether natural or artificial, the negative effect of inocu-



lation of matter from phlegmonous and scrofulous buboes, and the *positive result from virulent bubo alone*, will furnish an incontestible pathognomonic sign."

The second variety of *mediate* or consecutive bubo is that which succeeds to indurated chancre. This form of symptomatic swelling of the glands merits the greatest attention, and should be studied with care. It differs as much from the preceding variety as does indurated chancre itself from all other forms of primary ulcer. The swelling of the glands is here generally observed sooner, perhaps, than that which succeeds to non-indurated chancre. It is rare that it is not witnessed in the first week; and we may safely say, that its appearance is seldom delayed beyond the second. If it has not been more frequently met with, the reason is, that we were ignorant of its situation. Where we have indurated chancre, we have it inevitably followed by bubo, and it does not occur at a late period, as is the case in the course of other primary symptoms. M. Ricord has never seen chancre attended with the *specific* induration without there being symptomatic enlargement of the neighbouring glands. So regularly does this take place, and therefore so characteristic is enlargement of the glands, that it serves to point out the nature of the chancre by which the patient was attacked, even after its disappearance, or when it may be concealed in some deep region, or even when its base has been less distinctly *marked* than usual. For those who are well acquainted with this form of bubo, the seat of the primary symptom, a sort of forced entry of constitutional syphilis, is always easy to find, provided it is looked for in time; for it is chancre alone which of all other symptoms gives rise to it. "We can easily convince ourselves of this truth by the inspection of patients who are labouring under secondary symptoms, and who have that variety of glandular swelling in the neighbourhood of the primary sore. We can even by its presence recognise certain transformations *in situ*, unravel in a certain degree certain secondary symptoms, and find their true point of origin, as happens in some cases of papules or mucous tubercle reputed primary, and which have only succeeded to the place of a chancre. We may then affirm, that it is from want of a power of due appreciation, or a want of rigorous analysis, and from not having seen the disease at the commencement, or from being deceived by simple coincidences, that it could be believed that mucous tubercle, a secondary symptom, could have given rise to enlargement of the neighbouring glands. We may easily assure ourselves, that whenever this symptom, and all other secondary symptoms, develop themselves upon

many regions of the body at the same time, that it is only where chancre had existed that we shall find the glandular enlargement about to be described."

Acute, virulent, symptomatic bubo of non-indurated chancre may be attended with or preceded by an inflammation of the lymphatics. In the bubo of indurated chancre, the lymphatics are hard, indolent, and sometimes knotted in the situation of the valves: they can be easily raised up and circumscribed when those situated upon the dorsal aspect of the penis are affected.

On the corona glandis, under the *preputial conjunctiva*, we find flexible, winding cords; and if the semi-mucous membrane be ever so little stretched over them, it is pale, and the cords remain white, which is not the case when they are inflamed. This state of the lymphatics, consequent upon indurated chancre, may be confounded with other affections of the same vessels, if we had not the indurated chancre from whence the diseased vessels spring, and the affected glands in which they terminate, to help our diagnosis. Moreover, in this affection of the lymphatics, the neighbouring skin remains unchanged in colour, and is frequently œdematous; but this variety of œdema is, in some degree, gelatiniform, and pressure with the finger makes no impression on it. The glands, as in the other varieties, become swollen more frequently on the side corresponding to the chancre than on the other; but the opposite side is also often affected. In either case it rarely occurs that only a single gland is diseased. In the great majority of cases many suffer. If not an absolute, this is, at least, a very general rule.

At first there is but a slight *indolent* stiffness, which almost always escapes the observation of the patient, and even of the surgeon. It rarely happens except in those of a decided lymphatic temperament, or of strumous constitution, that the swelling ever surpasses the size of a hazel nut or walnut, unless in cases where inflammation, dependent on a totally different cause to that of indurated chancre, has been superadded; the glands remain indolent, hard, and resisting, giving to the touch, as near as possible, the same sensation as that produced by the specific hardness of chancre. They do not become confounded with one another to form a single mass, as happens in strumous swelling of the glands, for the surrounding areolar tissue does not, in general, become affected; they are, therefore, in general, moveable upon their base, and moveable under the skin, to which they do not adhere, and which is changed neither in colour nor temperature. In fat persons, more especially women, they are concealed in the adipose tissue; and they must



be sought for with care. These buboes almost always, but slowly, terminate in resolution, which is complete, and frequently does not occur for a long time after the disappearance of the chancre which called them into existence. Sometimes the glands as well as the lymphatics remain hypertrophied for an indefinite length of time. They are rarely the seat of active inflammation, and when they are, it is determined by other causes besides their specific one. If the buboes consequent upon indurated chancre suppurate, which seldom occurs, they never furnish *pus of a specific character*. This fact has often been witnessed by Dr. Thiery, of Brussels, as well as by our author. It is *simple pus* which they furnish, if it is not pus of a secondary symptom; but in all cases it is not inoculable; we must not, however, allow ourselves to be deceived by fresh chancres, which a patient may contract upon former indurations, and which then follow the laws of non-indurated chancre, and give rise to virulent buboes, secreting inoculable pus. Chancres on a *borrowed* induration are of frequent occurrence.

“Indolent bubo, which has here been described as the consequence of the *specific induration* of an indurated chancre, is already a symptom of secondary transition, of which a more complete continuation is found in the constitutional buboes, properly so called, or in the enlargement of the posterior cervical glands, constituting the second species of syphilitic bubo, which will be spoken of further on.”

M. Ricord next lays down the two following propositions, which, he thinks, more than twenty years' experience enables him to do:—

“1st. Every bubo which suppurates specifically—that is to say, which furnishes inoculable pus—is never followed by secondary constitutional contamination, a sign of more value than the absence of induration in chancre which has preceded, and which may deceive.

“2nd. Multiple indolent bubo, consequent upon indurated chancre, is a further and sometimes the sole proof of constitutional infection, when we have not an opportunity of witnessing the induration of the chancre.”

These propositions being laid down and admitted, let us consider their effects upon the therapeutics of syphilis. “In the first place, we can no longer admit but one mode of treatment in venereal bubo, for, as we have just seen, venereal bubo does not constitute a pathological individuality: would that it did, and that its differences consisted chiefly only in its greater or less depth, or in its greater or less acuteness. We cannot, as in the time of Bell, without attention to their *point*

*de départ*, or their particular nature, have the pretension to say that we are able, without chance of failure, to prevent the suppuration of buboes, or cause it at pleasure. These day-dreams of the older writers on syphilis have vanished; at present no one believes that he can cause to pass, by the same lymphatic vessel which has allowed the passage of the virus, just sufficient mercurial ointment to neutralize it in the glands, and arrest its effects. We too well know that a mercurial preparation placed in direct contact with virulent pus, upon primary venereal ulcers, or upon the chancreous ulcers of buboes, not only does not always neutralize the specific morbid secretion, but that often, on the contrary, it increases much their activity. If we can in the great majority of cases hinder the suppuration of sympathetic buboes, by the methodic employment of compression and resolvents, we fail in the bubo of absorption, which is attendant on non-indurated chancre; and no matter what means we employ, we can never cause suppuration to take place in the *specific* virulent bubo, symptomatic of indurated chancre. It is from a want of knowledge in being able to determine the different species, that we have deceived ourselves, and believed in results which we thought would inevitably follow."

If leeches be employed in the cases in which buboes follow upon non-virulent venereal symptoms,—upon blennorrhagia, for example,—we may apply them in the advanced stages without giving ourselves much uneasiness whether their bites are at a greater or less distance from the centre of inflammation. But on the contrary, when the bubo is virulent—that is, when it has followed upon a non-indurated chancre, and that the rational diagnosis permits us to allow the existence of a virulent bubo,—if we have it still in our power to combat the inflammation by leeches, we should concentrate them upon the most inflamed point; for if suppuration takes place, and if the abscess open or is opened, each leech-bite which has not been cicatrized becomes inoculated by the contact of the pus. Our author has frequently witnessed this; and we have ourselves, not long since, seen (in the case of a young girl suffering from chancre) the bites of ten leeches, which were applied for the relief of piles, changed into so many chancres. As to the opening of suppurating buboes when they are not virulent, whether one or more punctures are made, a speedy cure most frequently occurs, which is to be attributed rather to the nature of the disease than the operation. But in cases of bubo, the matter of which is of a specific nature, be there one or many openings, the pus which passes through these inoculates



their edges, and soon transforms them into chancres, which spreading, run one into the other and speedily destroy the skin covering the abscess. When the abscess is small, but a single puncture or incision is necessary; when the skin is still thick, and the abscess very large, we may resort to many punctures; but if the parts are much undermined, and the skin thinned and deteriorated, the Vienna paste carefully applied causes a more rapid cure by destroying, within proper limits, those parts which ulceration would effect more slowly. But in all cases in which we have to treat a virulent bubo, it is better to open it too soon than too late.

Buboes symptomatic of indurated chancre, concerning which many give themselves much useless trouble, and which, unless in cases where the complications demand a particular treatment, such as antiphlogistic, where inflammation happens to be present,—or anti-strumous, when they occur in a scrofulous constitution,—leave us almost nothing to do locally, the anti-syphilitic general mercurial treatment being the essential, we might say, the sole means for their cure. Whether the mercury is introduced into the system by the digestive apparatus, or by the skin, it acts efficaciously against this kind of bubo. “We would not, however, exclude the utility of frictions over the parts, the employment of resolvent plasters, and the good effects arising from compression.”

M. Ricord has frequently affirmed, but again wishes to reiterate, that general syphilitic poisoning, constitutional syphilis, or the syphilitic diathesis, whichever term may be used, cannot exist but as the consequence of chancre, no matter where it may have been situated, or of hereditary descent. “*There is no constitutional syphilis without chancre, or without the father or mother having suffered from chancre.*” This is a truth more consoling than the doctrine which makes of syphilis an invincible enemy of the human race, present everywhere, and everywhere invisible: like the lion in the Scriptures, perpetually on the watch—*quærens quem devoret.*”

Does chancre always cause general contamination of the system? If it does not always do so, what are the circumstances under which it does—and what then happens? These are questions, did space permit, we would wish to answer *in extenso*. “In the first place, chancre is the sole symptom produced by inoculable pus—the only one which all inoculators have produced. We may be certain that nature acts not otherwise than art. Chancre is then the first symptom which follows contagion, and consequently the primary symptom. The true non-indurated chancre, without affection of the glands, or

without bubo attended with specific suppuration, never contaminates the constitution. The propositions are absolute; but in order to establish them there must be a rigorous diagnosis. There are, then, chancres, and perhaps they are the most numerous, which do not infect the constitution, and which in general can be recognised."

It has been asked, how can a poison or a virus be placed in contact with the circulation without the circulation becoming contaminated? Do we not, on the contrary, see that this poisoning is effected from a point in the economy contaminated? Those who reason thus forget the numerous cases in which inoculation of small-pox fails; those in which it is impossible to vaccinate; those numerous cases in which malignant pustule and carbuncle have been only local, or destroyed when they were formed. Why, then, should not syphilis, already less active, enjoy the same privilege? It has been before stated that constitutional infection is neither dependent on the locality, number, extent, or absolute duration of chancre, and that it only takes place under certain circumstances, which we shall endeavour to point out.

First, then, as to the time which separates the constitutional symptoms from the *implantation* of the virus, or from the appearance of the primary symptom. What interval is there between the chancre and the first appearance of secondary symptoms?

"Whatever be the mechanism by which infection takes place: by traversing at first the lymphatics, or acting immediately upon the blood; is the virus a ferment which finds a fermentable matter from which results a new toxic agent that loses the power of being inoculated; or is the poisoning of the constitution otherwise effected; it is impossible to lay down with accuracy the exact time of their appearance. Here, again, we meet with great laxity of opinion, which allows the appearance of secondary symptoms from some weeks after contagion to an indeterminate number of years—from fifteen days to thirty years and upwards. It is assuredly certain, that, if we do not know how to recognise the symptoms reputed primary; if we cannot discern that which ought to produce infection; and that we consider constitutional syphilis, in all cases, as the consequence of all that may have preceded: as the sum or as the result of all the blennorrhagias, of all the ulcerations, of all the glandular swellings which may have existed anteriorly, no matter at what distance of time the one from the other, we shall arrive at the same results as the author of the *Traité des Syphilides*, who, rejecting every primary sore, admits finally too



much and more than is requisite; finding the origin of a constitutional syphilis to have been five or six blennorrhagias, often as many chancres and buboes, with years of interval, so that the infection may have commenced thirty years before, and successive additions afforded the sufficient quantities necessary for its action.

But let us return to that which, as M. Ricord observes, clinical experience so uniformly teaches, and which he engages to verify to the incredulous. Let us see what takes place after a chancre has been duly diagnosed, and flanked, to use the author's expression, by its glandular Pleiades. When no specific treatment has been employed, and when the disease has been left to its natural course, "*six months never elapse without syphilitic poisoning manifesting itself.*"

This is an universal law, which there is no means of eluding but by means of treatment. M. Puche is of the same opinion, and has verified it by hundreds of observations, without ever having found an exceptional case. "Six months! yes, and even six months is a very long period, for most frequently secondary symptoms make their appearance from the fourth to the sixth week; frequently in the second or third month, and rarely in the fifth or sixth month. It is a truth which cannot be too often repeated, and the results of which follow as certainly as those of Galileo."

In some works on general pathology, constitutional syphilis is not looked upon as giving rise to a peculiar diathesis; and yet is there any other disease in which there is a diathesis better marked? where peculiar symptoms appear, re-appear, and are so infallibly transmitted by hereditary descent.

"More ignorant than Thierry de Hery, forgetful of the precepts of the judicious Fernel, and deaf to the voice of Hunter, some in the present day maintain that syphilis is vagrant and without order. Syphilis, so systematic, so symmetrical, so regular, that M. Andral has said that it might in some degree serve as the key to all pathology. But to understand and appreciate this order, the disease must be observed in a *state of nature*, without artificial influence, and without therapeutic modifications. Thus, we see the symptoms which follow in succession, and which differ, according to the period of their appearance, the longer or shorter time from infection, by their seat, their number, often by their arrangement, their form, their duration, their termination, their influence upon generation and progeny, and in fine, by their greater or less obedience to such or such medicine, or specific, if you prefer the phrase. Syphilis may be compared to a ribbon which is un-

rolled more or less quickly, but the tints of which change after a certain number of turns, *the free end* of which, therefore, which is held by the person who has, so to say, communicated the disease, no longer resembles the other extremity which is adhering to the bobbin, or, if you like it better, to the skeleton of the affected individual."

These shades—often so well marked, so defined, so exact in their succession—can never be expressed by the term acute or chronic stage, for each may be acute or chronic without changing in any degree the other characters upon which its classification is based. Syphilis, on the whole, is more chronic the longer it lasts; this is a truth which requires no demonstration; but the absolute duration of the disease is not the sole cause of the difference of seat and form of the symptoms to which it gives rise; thus, the roseola which, in certain individuals, is an acute symptom, may re-appear many times in the course of the first and second year after infection, and sometimes even later, whilst the affections of the osseous system, that the same individuals would range amongst the chronic symptoms, may show themselves, in some cases, in the first five or six months of the constitutional contamination.

M. Ricord here makes a digression in order to criticise the memoir of M. Waller, of Prague, which has been recently published on "the inoculation of secondary symptoms," but which our limited space forbids to follow; we shall, therefore, proceed with him to continue the inquiry into the symptoms of constitutional syphilis, having observed, that when no treatment had been employed against chancre, symptoms manifest themselves within a given time, and after a certain order, which admit of classification. What Hunter justly calls a syphilitic disposition, that is to say, a *diathesis*, must be considered as being established; and from that moment symptoms capable of affecting different parts and different tissues of the body, appear with greater or less rapidity, and advance more or less quickly. During a period which may be regarded as that of incubation, more or less well-marked disturbances of the blood may often be recognised—more especially a diminution in the red globules, constituting the chloro-anemia which accompanies secondary symptoms, properly so called, and which is often exceedingly well marked. At this period also, and frequently before the appearance of any other symptom, and as a primary consequence, disturbed vision, muscular debility, neuralgic pains in the head, and *rheumatoïd* pains of the extremities, occur. These secondary pains may also appear at a later period, together with other secondary symptoms; recurring



alone or with them, but must not be confounded with a different class of pains, which occur at a still later period. They are not necessarily present in all cases, and their general character is that of being intermittent and *nocturnal*, increased by heat, particularly that of the bed. Thus, patients who turn night into day, and *vice versa*, invert the order of access of those pains. They do not regularly return each time to the same part, and during the period of intermission no pain is caused by pressure on the part that was affected. Some patients often experience ease during their moments of greatest suffering, by exposing the surface to the action of cold, and by making pressure. Motion also rather eases these pains; and they are seated principally in the neighbourhood of the joints, and sometimes in the dorso-lumbar region; the skin over the affected parts is not changed either in colour or as regards temperature, neither is there any tumefaction. These pains generally disappear when a cutaneous eruption makes its appearance.

At this time there is present almost constantly a swelling of the glands which truly deserves the name of secondary buboes. This affection of the lymphatic ganglions, at the secondary period, merits peculiar attention. It is in some degree characteristic of it; and is also one of the first proofs of constitutional infection. It sometimes makes its appearance in the third week, but more frequently about the sixth, and is a pathognomonic sign of indurated chancre. It has a peculiar predilection for the posterior cervical or cervico-cephalic region; and is less frequently found affecting other parts; but if it should do so, we must be upon our guard not to confound other affections of the glands with it, more particularly that arising from primary symptoms, which may have their seat in unusual situations.

True secondary affections of the glands seldom acquire a considerable size, are indolent, and many are affected at the same time; they never suppurate, at least not *specifically*, and never furnish pus which gives results by inoculation.

M. Ricord has met with this affection of the posterior cervical, occipital, and mastoidean ganglionic glands, without the slightest trace of eruption on the scalp. M. Puche, of the hospital *du Midi*, has also witnessed similar cases, and we ourselves can bear testimony to the truth of the observation.

This affection of the glands is seldom found accompanying the later secondary symptoms, and is not an attendant on tertiary symptoms, unless they may have been previously in existence.

At the commencement of an attack of constitutional syphilis,

we often meet with a symptom which those who have only had their information from books look upon as indicative of an old and inveterate disease, viz. alopecia; but which is one of the earliest of its signs, and sometimes even the first, and is not found at a more advanced period, unless it be confounded with baldness arising from other causes. With regard to the skin and mucous membrane, and their dependencies, even those who will not allow of distinct phases yet agree that when the symptoms have followed at an early period on contagion, the affections are superficial, generally disseminated, and more or less confluent. "If you follow the evolution of syphilis, the facility for so doing being, alas! too common at the present time, you will see with what regularity and with what constancy they present themselves within the desired period, in the form of exanthematous, rubeolic, or erythematous eruptions. So constant is their occurrence that Puche and Cullerier the younger, think that they are never absent. There is no doubt that they are almost always discovered when they are sought for at a proper *period*, and not allowed to pass unobserved, for they are only recognisable by the eye; but these primary eruptions are followed, earlier or later, by papules, spots more or less elevated, and squamæ, and by vesicles, vesico-pustules, and pustules more or less superficial, whose suppurative forms are not recognised by the same characters through all epochs of syphilis, when properly traced to their true *point de départ*, be it chancre causing constitutional contamination, or hereditary taint. As regards mucous membranes, and the regions of the skin where they are passing into mucous membranes, or are easily susceptible of passing from one to the other, the same observations hold good; here there is first but simple alteration of colour, but from the structure and the peculiar functions of these parts, papular spots sooner make their appearance, and advance more rapidly to make way for mucous papules or tubercles, upon which so many hypotheses have been built, and which still are the cause of so much discussion; but those symptoms, about which so little is known, and whose particular appearance is due to so many accessory circumstances, both as regards texture, seat, and functions, do not make their appearance at all periods of syphilis, no more than does roseolous rash. Now when you have taken the pains to make a differential diagnosis, and that by a deplorable confusion of language you do not confound *syphilitic tubercles* with the papules or mucous spots, which may be more or less salient or tuberiform, you will not find these symptoms as the first manifestation of a syphilis con-



tracted ten or twenty years before, and which had not been subjected to treatment."

In proportion as the constitutional affection grows older, the symptoms which it produces tend to become more and more grave, and attack more deeply-seated parts; but as a sort of compensation the parts attacked are less numerous. It engages the entire substance of the skin and the areolar tissue beneath it, and even seems to have a peculiar predilection for certain regions: for example, in the mouth, the substance of the tongue and soft palate. On the *first* appearance of secondary symptoms, it is the internal surface of the lips and of the cheeks and the tonsils that are attacked; whilst at a later period the parts behind the pillars are engaged, and great destruction to the pharynx is caused. These latter symptoms do not appear for five or six months, at least, after contagion. In like manner, disease does not attack the testicles, the fibrous and the osseous systems, the muscles, and other deeper situated organs, as the heart, brain, lungs, and liver, until a much later period.

When the periosteum and the bones become affected, pain precedes and accompanies the attack; these pains are true osteocopic, and are easily confounded by negligent observers with those of the second period, although as distinct as any two things can be. They affect the superficial and compact structure of bone, occur at night, and are exasperated by heat, especially that of the bed; they are increased by pressure both during the paroxysm and its diurnal intermission. In fine, there exists at the seat of pain a swelling of the bone and periosteum.

Observation, then, teaches that syphilis, left to itself, tends to give rise more or less frequently, and after a longer or shorter lapse of time, to symptoms in certain determined regions, and in certain forms, constituting, in some degree, distinct diseases, but bound together by a common cause, and succeeding each other often by gradual transitions; but also, sometimes, as if by sudden outbreaks well defined one from each other. "We can then admit, with Thierry de Hery, Hunter, and others, three well-characterized stages of syphilis.

"1st. Chancre, or primary symptom, the immediate result of contagion; an acknowledged source of a virus capable of being reproduced, persisting in the state of a local symptom upon the skin or mucous membranes within certain limits, having power of extension to neighbouring ganglionic glands to give rise to bubo only: in fine, being capable of causing constitutional contamination.

"2nd. Secondary symptoms, resulting from that infection

or poisoning of the constitution, and making its first appearance in the course of the following six months, having for its seat the skin, and the mucous membranes and their appendages; with symptoms supposed to be contagious without a rigorous demonstration, which cannot be reproduced by artificial inoculation, but are transmissible, by hereditary descent, either individually from the father or the mother, or from both together.

“3rd. Tertiary symptoms, rarely making their appearance for the first time before six months, their seat being in the subcutaneous or sub-mucous areolar tissue, in the fibrous, osseous, and muscular structures, in certain organs, as the testicles, heart, brain, lungs, liver, &c. Not only are their morbid secretions not contagious by ordinary contact or by inoculation, but their specific influence by hereditary descent is always decreasing; so that finally they become but a hereditary cause of scrofula.

“These facts, although displeasing to those who have a horror of precision of language as applied to the exact sciences, are truths which may be easily verified; and there is no apparent departure from this order, unless it is interfered with by therapeutics.”

We have now seen how superficial and diffuse secondary symptoms are at their commencement, and how they become more serious, deeper seated, and more grave in their nature as they grow older. Their course, however, is subject to disturbances almost always foreign to the nature of the disease, being the result of accidental causes, and most generally of treatment. “Syphilis, however, is without doubt one of those maladies over which art can exercise a considerable power. Many credulous practitioners, who have but little experience, even believe, as do the vulgar, that medicine ought always to be entirely successful; and that where the disease resists, increases, or re-appears while being treated, the blame should be thrown upon the physician and not upon the remedy: indeed, it has been lately asserted in one of the journals, with the greatest coolness, that syphilis cannot resist 110 of Dupuytren’s pills! yes, 110 pills. Alas, what gasconade!”

Constitutional syphilis is undoubtedly one of the greatest calamities to which the human race is subject. Happily, notwithstanding its frequency, it is relatively small when compared with the numbers who expose themselves to contamination. This *inaptitude* exists in certain idiosyncracies; and observation has taught the author, that in general the system is not capable of being affected a second time by constitutional syphilis; and that patients are not apt twice to contract indurated chancres, to be followed by constitutional symptoms. “Since syphilis



can be transmitted by hereditary contamination, from parents to their offspring, may we not be permitted to believe that an inaptitude acquired by the parents may also be transmitted to the child?"

It is in consequence of this opinion, the truth and justice of which, M. Ricord says, each day verifies, that it has been and is sought to impress upon the economy a disposition equivalent to that caused by cow-pock, or a first inoculation of small-pox.

M. Auzias Turenne believes that individuals may be rendered insensible to the direct and immediate action of virulent matter, and the contagion of chancre be prevented. His experiments on animals led him to this conclusion, from observing, where many successive inoculations were performed, the effects of the later were progressively less and less marked, and of shorter duration, and finally that no result could be produced. He considers this to depend on a modification imprinted on the economy by a sort of infiltration of the syphilitic virus, producing what he calls syphilism or syphilisation, being to syphilis what vaccination is to small-pox—that is to say, that it hinders or prevents for the future the development of primary sores, without there being even a possibility of the syphilitic diathesis, as understood by M. Ricord, or constitutional symptoms being caused. These experiments were performed on apes. But the experimentalist, seeking to apply the law to the human species, believes that he has seen certain persons who became insensible to the power of chancre after they had undergone a certain number of contaminations. But he does not tell us how many he counted. "His examples, we believe," says M. Ricord, "have been selected from public prostitutes grown old in debauchery, and who finally are less frequently attacked than those commencing their career. All who expose themselves to the infection of chancre do not contract disease."

Most observers have seen that in persons who have frequently suffered from chancre at various periods, the last chancre is of a more serious character than the first, and those numerous non-indurated chancres which had existed from time to time did not hinder that last contracted from becoming indurated and infecting the system, and this infection even not preventing a fresh chancre from being contracted, which, however, did not become indurated, though it was often of a severer character than any which had preceded it.

M. Ricord says, that there may be always seen at the Hôpital du Midi, chancres spreading continuously, by phagedænic ulceration, by true successive inoculations, especially in

the serpigenous form, where they destroy the surface to a considerable extent, amputate the penis, burrow in the groin, and destroy the skin of the abdomen from one iliac region to the other. In fine, these chancres having run their course, having attained these dimensions, which are not even their extreme limits, have existed for months, nay, even for years, capable of furnishing pus whose inoculation will be attended with as serious results as it would have been at the commencement. And yet, here the number of accidental and successive ulcerations, their extent and their duration, would seem to be equivalent to what is accomplished in those inoculations called preventive, and which have been repeated at short intervals and in *the same* region. It is true that in the one case nature or the disease acts *without preventive intention*, a difference perhaps from well-intentioned art.

“ In conclusion, what is to be thought of a preventive means, attended, too, with many dangers, employed to remove the susceptibility of contracting chancre,—a result which must not of necessity, as in the case of small pox, happen any one, and requires that the contagion be communicated at first from twenty-four to sixty-four times,—without our even knowing how long this dear-bought indemnity may last. M. Puche performed seven successive inoculations on the same individual, and the results of the last were as active as those of the first.”

The following letter, the thirty-third of the series, contains a letter from M. Auzias Turenne, accusing Ricord of not fairly representing, and of misapprehending his views, and the reply of our author thereto; but the extended space which we have already devoted to an exposition of his views warns us to draw to a conclusion.

The best means of preventing constitutional contamination, then, according to our author, is to destroy as soon as possible the primary symptom; “ but if we do not see the disease until it is too late to have hopes in the abortive treatment, should we have immediate recourse to general specific treatment? Decidedly not. The chancre which infects the constitution is that most rarely met with; from all others, no matter what may be the number, the duration, or the repetition of the primary symptom, constitutional contamination does not take place, and specific treatment then is not only unnecessary but may be injurious.”

Some, convinced with M. Ricord that the majority of primary symptoms heal both quickly and well by attention to hygienic rules and simple treatment, wish that we should wait



before having recourse to an energetic and specific treatment for the proofs of constitutional contamination, and that special treatment should be commenced only when secondary symptoms make their appearance; others, who recognise the necessity of a special treatment, when the chancre presents the characteristic appearances he has so much dwelt upon, do not wish, nevertheless, to prescribe it until the symptoms of general contamination show themselves, not only to demonstrate the actual necessity of it, but especially to prove to their patients that the treatment must be long and continuous. M. Ricord, however, recommends that from the moment we have to deal with a chancre which we know will infect the constitution, recourse should be had to specific, that is to say, to mercurial treatment.

“The mercurial treatment,” he says, “can hinder the appearance of constitutional symptoms, or simply retard them for a time difficult to limit, as it varies from months to years. Most practitioners must have seen patients who, after having been treated specifically, have enjoyed during ten, fifteen, twenty, thirty years all the privileges of excellent health, and who finally have presented, either for the first time or as a relapse, symptoms characteristic of syphilis. In presence of facts of this kind, unfortunately so numerous, how can we but admit the persistence of the diathesis compatible with apparent good health; how can we in all cases conclude in an absolute destruction of the acquired syphilitic disposition, as some speculators have so lightly done?”

“That which would give us the certainty that the diathesis can be destroyed by a proper course of treatment, that which, moreover, ought not to be impossible, would be observations well authenticated, well detailed, well analysed, of individuals having had indurated chancres twice or oftener, and having presented each time the series of constitutional symptoms in the natural order with which we are now acquainted.”

To continue specific treatment only until the symptoms disappear is the method by which we may be almost sure of their return. To insist upon the continuance of the treatment for as long a time after the disappearance of the symptoms as it took to overcome them, does not conduct to happier results; for in some cases it would be too long and in others not sufficient. Again, salivation as a gauge of treatment presents still greater inconveniences, and less of a guarantee than the other methods.

“Six months of treatment, by a daily dose which produces an influence upon the symptoms that are to be overcome, and

which indicates, by known physiological effects, after they have disappeared, that the medicine acts still, constitutes at the present time the rational treatment with which most practitioners are content, and which seems to give a promise of cure most likely to be permanent."

But whether we administer mercury solely for the primary, or have recourse to it against secondary symptoms, the treatment, as has been already said, may derange the time of their appearance and the natural order of the symptoms. More powerful against secondary than tertiary accidents, mercury sometimes hinders the appearance of the former, whilst it is powerless over the development of the latter. It is thus that, after a chancre treated by mercury, the first constitutional disturbance may manifest itself in an exostosis, forming, for some who only know how to count upon their fingers, a secondary symptom out of a tertiary, as if its nature could be thus alone decided: in the same manner, and under the same influence of treatment, secondary symptoms may appear after tertiary, but this, far from being from a want of order, is only the effect of art, and shows its power. When the disease is left to itself this never happens. M. Ricord's colleague, M. Cullerier, believes the order of their appearance to be so inevitably regular, that treatment can in nowise interrupt it; and such, indeed, is the opinion to which we are inclined to subscribe, from having often witnessed the appearance of the secondary symptoms to be so slight that, if we had not been on the watch for them, they might have been overlooked, or been mistaken for some other affection. Indeed, such we have known to be the case where slight feverish symptoms only were present, and where the appearances upon the skin consisted solely in a slight exanthematous redness, and the swelling of the cervical glands served to confirm the opinion in others, that they were unconnected with syphilis, whilst to us they were truly pathognomonic of the contamination of the system. This, however, is not the opinion of M. Ricord. The manner, then, in which he regards the evolution of syphilis to take place, and the methodical classification of the symptoms which he has traced, has enabled him to have recourse to a rational treatment of syphilis, and to administer mercury solely where it is useful. At one time this remedy was too much neglected by one set of practitioners, whilst another was too prodigal in its use.

The iodide of potassium, when at first recommended as a medicine in the general treatment of syphilis, and which then gave therapeutic results so uncertain, sometimes so contradictory, or at least so little satisfactory, has been, as the result of



his clinical observations, reserved more especially for the series of accidents which he has denominated *tertiary*, upon which they have an especial and powerful action. In this view we fully concur; and we have used this medicine in combination with opium most successfully in the deeper seated affections of the skin and subcutaneous tissue—more especially in that form of the disease which appears as a subcutaneous tubercle, and which is followed by extensive sloughing; never shall we forget the satisfaction which it gave us in the case of an emaciated female, in whom one of these tubercles had caused extensive destructive sloughing and ulceration in the thigh, and in whom another similar tubercle was commencing in the orbit, threatening the destruction of the eye; but which readily yielded to its administration.

The following is M. Ricord's *resumé* of his treatment:—

“1st. The abortive treatment should be applied to a chancre as soon as possible.

“2nd. Mercurial treatment should be used only in cases of indurated chancre and secondary symptoms.

“3rd. Iodide of potassium in tertiary symptoms.

“4th. A mixed treatment, both by mercury and by the iodide of potassium, in cases where secondary symptoms are late in making their appearance; or when tertiary symptoms exist at the same time.”

With all deference to so high an authority, we must disagree with M. Ricord as to using mercury and iodide of potassium at the same time. Many, we are aware, do so at present, but our experience leads us to recommend that where iodide of potassium is requisite, it should be used alone, or in combination with iron, as the cases which require the employment of this medicine are generally in a chloro-anemic state; having by their combined use given tone to the constitution, we can then, if necessary, have recourse to mercury.

We part here from M. Ricord with regret; his carefully conducted inquiries have effected much in the improvement of our knowledge as to the nature and treatment of one of the scourges of mankind, and we rejoice to know that he still sedulously devotes his original mind and admittedly great talents to the further development of the pathology of syphilis.

*On Rupture of the Perineum, and its Treatment.* By ISAAC BAKER BROWN, F.R.C.S. London: Churchill. 1852. 8vo, pp. 30.

THE chief object of the author in this pamphlet is to urge the more frequent application of surgical treatment for the cure of extensive lacerations of the perineum. The operation recommended by Mr. Brown differs in one particular from that usually practised in these cases: in every instance, before putting in the sutures, he divides the sphincter ani muscle. This division should not be at its insertion, but through the belly of the muscle, about one-third from the os coccygis. Mr. Brown dwells strongly on the importance of this preliminary, and considers that much of the subsequent success of the operation rests upon it. Mr. Copeland and Mr. Bransby Cooper, he says, recommended this many years ago as an important step in the procedure. The author relates two cases where the plan of treatment described proved completely successful, although the perineum was destroyed throughout its entire length. In the management of the patient subsequently to the operation, the frequent periodic use of the catheter, and the liberal administration of opium, so as to keep the bowels quiet for the first few days, are very properly regarded as essential conditions.

The great objection to all these operations on the perineum is the danger of rupture from future labours, and we cannot consider this objection to be set aside so "happily" as Mr. Brown supposes. The actual propriety of such a curative measure is, in point of fact, the first question to be decided in a large class of these pitiable cases; and we think the author would have materially advanced the object in view had he prefaced his remarks with a satisfactory solution of it. Of the two patients whose histories he gives, one was the mother of nine children, and forty years of age; the other had given birth to six children, and was thirty-seven years old. When he wrote his paper, sufficient time had not elapsed to test the efficacy of his operation by the result of another delivery. Where the contingency of a subsequent labour is totally precluded, there can be no doubt of the propriety of an attempt to better the patient's condition, and the suggestions and rules pointed out by Mr. Brown then deserve attentive consideration.



*On the Fallacies of Homœopathy, and the imperfect Statistical Inquiries on which the Results of that Practice are estimated.*  
By C. H. F. ROUTH, M.D., M.R.C.S., Physician to the St. Pancras Royal General Dispensary; one of the Secretaries of the Medical Society of London; Corresponding Member to the Royal Academy of Surgery of Madrid, &c. &c.  
London: Lewis. 1852. 8vo, pp. 86.

THE name of Dr. Routh is already well known to the profession. Junior in standing, but advanced in observation and philosophical experience, he has, in the pamphlet before us, taken up the subject of homœopathy in a calm and reasoning spirit, which in our opinion the subject scarcely merits; but as our author observes—

“All doctrines are founded on truth, or what is supposed to be truth. The way to disprove a doctrine is, therefore, not by assailing it as ridiculous or absurd,—a conviction of error can only follow when the foundations upon which it is based are shown to be untenable.”

The homœopaths cannot certainly say of Dr. Routh that he treats them slightly or discourteously; and perhaps on this account the crushing of their fallacies is the more complete. Dr. Routh considers homœopathy in three views:—1st. In regard to its great principle of *similia similibus curantur*. 2nd. In regard to the influence of mind and of regimen. 3rd. In regard to practice or experience.

In regard to the first view, Dr. Routh fully admits, in common with the well informed of the profession, that the principle is true of some medicines: but combats, and very properly, the fallacy of deducing from this that it is of universal application:—

“It is notorious that, in some instances, particular individuals are peculiarly influenced by ipecacuanha, so that a grain, or much less, will, if sprinkled through the air, bring about the most violent symptoms of catarrh; and yet it is not logical to conclude that, in *all* cases an infinitesimal dose of ipecacuanha will cure, or greatly meliorate, the symptoms of catarrh.”

“Certain peculiar eruptions which occur after taking mercury have been described as produced by it, and which closely resemble those against which mercury is a specific. Here, then, are instances of the occasional truth of the law. But numerous instances could be mentioned of the contrary. Gallic acid and turpentine exert a specific influence in cases of hemorrhage. Can these medicines produce hemorrhage? Turpentine and the oil of male fern are specifics in many cases of tape-worm. Would a healthy person, taking turpentine continually, have tape-worm?”

Dr. Routh in a single line answers the anticipated objection of the homœopaths who would say in reply to the above passage—"If they should produce respectively hemorrhage and tape-worm, &c., this would be *isopathy*, not homœopathy." His reply is, "Do they produce anything *like* a tape-worm—any *animal* like it?"

The remarks on the absurdities of the infinitesimal dose are well worth perusal, exposing as they do the combined folly and roguery of this system.

Under the second head Dr. Routh gives some very interesting facts of the influence of mind in the cure of diseases principally nervous,—to the uninformed appearing most violent and dangerous to life, therefore most likely to produce a great sensation among the unprofessional part of the community: such cases, treated by globules, are always the great support of homœopathy. For these we must refer to the pamphlet itself. When on this part of the subject, Dr. Routh very judiciously goes into the question of the effects of homœopathy on inferior animals; for on these alone can its merits be tested apart from mental influence.

"Through the kindness of an amateur, my attention has been directed to some cases of cure, or *pretended cures*, of animals by homœopathic medicines. First, a statement made by Dr. Gross, in Stapf's Archives Homœopathiques, who maintains that one of his friends, a veterinary surgeon, cured by ten doses of phosphorus, No. 4, at intervals of five days between each dose, a *fungus hematodes* of the size of a child's head, upon the hinder parts of a horse; a form of cancer well known to be most rapid in its course, and least susceptible of cure: and, he adds, the same gentleman had always succeeded in curing those malignant colics in horses which had hitherto been considered fatal, by aconite, colocynth, sulphur, or arsenic. Few medical men would, I think, be disposed to believe these statements. But, admitting they should be true, it is extraordinary that these experiments have not been confirmed by subsequent experience."

Dr. Routh devotes a chapter to hospital statistics. Of all the sources of fallacy we believe ordinary hospital statistics to be the greatest; indeed, we would go so far as to say that statistics in medicine are worth nothing unless where worked up by one physician thoroughly anxious to estimate the respective merits of different modes of treatment, and honestly bringing together, for the purposes of trial, cases agreeing in kind and in intensity. Nothing is more easy than for the medical officer to bring down his mortality, if he be so disposed, to almost *nil*—he has only to confound together all mild and



severe cases of the same disease; to decline receiving very bad cases, as hopeless; and to suggest to friends to remove dying patients; and he will show a very trifling mortality compared with the honest hospital physician who takes all cases as they come.

“ The secret of Dr. Fleischmann’s great seeming success *lies in the fact of the admissions and dismissions being entirely uncontrolled, and there being no check on the diagnosis.* Indeed, to say the least, it requires a man to be very conscientious to decide impartially where a case is cured or only convalescent, and to admit none but the worst cases, more especially when the maintenance of the hospital depends on the returns of mortality attaining a cypher which shall be considered favourable by the Government.”

Dr. Routh’s observations on hospital statistics are most important and comprehensive. We should spoil them by any short extract, and we have not space to insert them in full; but no one who takes an interest in this important subject should omit their perusal. His analysis of the homœopathic returns in reference to particular diseases, as pneumonia, pleuritis, peritonitis, &c., is ably, and must have been most laboriously, worked; it will not bear contraction. The author finally winds up with the following conclusions, to which the impartial reader will give his full assent:—

“ In the homœopathic cures effected, globulism is absolutely for nothing, and the practitioner who would attribute such cures to globulism must be considered as either full of simplicity, or a friend to quackery; but that they are due—

“ 1. To the influence of the mind on the body, through the voluntary or emotional systems.

“ 2. To the *vis medicatrix naturæ*.

“ 3. To excellent dietetic regimen.

“ 4. To allopathic treatment surreptitiously conjoined.

“ And secondly,—

“ 1. That in many cases the homœopaths are inexact and inaccurate in their diagnosis.

“ 2. That, therefore, their statistical returns are, in many cases, falsified.

“ 3. That they allow nothing for the different and varied circumstances under which different patients are placed, as type, comfort, locality, idiosyncrasy, &c.

“ 4. That, therefore, their comparisons with allopathic practice are unfair and not to be depended upon.”

Dr. Routh has chosen for himself the highest walk of professional literature; he will command success, for he labours to deserve it, and we hope we shall often meet him in the progress of our editorial labours.

1. *Descriptive and Illustrated Catalogue of the Histological Series contained in the Museum of the Royal College of Surgeons of England.* Vol. I. Elementary Tissues of Vegetables and Animals. London: Richard and J. E. Taylor. 1850. 4to, pp. 305, with 18 plates.
2. *Handbuch der Allgemeinen und Speciellen Gewebelehre des Menschlichen Körpers für Aertze und Studirende.* Von Dr. J. GERLACH. Mainz: Verlag von Edward Tanitsch. 1850.  
*Handbook of General and Special Histology of the Human Body, for Practitioners and Students.* By J. GERLACH. Mayence: Edward Tanitsch. 1850. 8vo, pp. 500, with 162 woodcuts.
3. *Mikroskopische Anatomie oder Gewebelehre des Menschen.* Von Dr. A. KÖLLIKER, Professor der Anatomie und Physiologie in Würtzburg. Zweiter Band: Specielle Gewebelehre. Erste Hälfte: Von der Haut, den Muskeln, Knochen, und Nerven. Leipzig: Verlag von Wilhelm Engelmann. 1850. Zweite Hälfte: 1. Abtheilung. Von den Verdauungs—und Respirationsorganen. Leipzig. 1852.  
*Microscopic Anatomy or Histology of Man.* By Dr. A. KÖLLIKER, Professor of Anatomy and Physiology in Wurtzburg. Second Volume: Special Histology. First Half: The Skin, Muscles, Bones, and Nerves. 1850. 8vo, pp. 554. Second Half—First Division: The Digestive and Respiratory Organs. Leipzig: William Engelmann. 1852. 8vo, pp. 346, with numerous woodcuts.
4. C. CANSTATT'S *Jahresbericht über die Fortschritte der Gesammten Medicin in allen Ländern im Jahre, 1850.* Redigirt von Dr. EISENMANN. Erlangen, 1851.  
C. CANSTATT'S *Annual Report on the Contributions to General Medicine in all Countries. For the year 1850.* Edited by Dr. EISENMANN. Erlangen, 1851.
5. *Zeitschrift für Rationelle Medicin.* Herausgegeben von Dr. J. HENLE und Dr. C. PFEUFER, Professoren der Medicin an der Universität zu Heidelberg. Neue Folge. 1 Band; 1 Heft. Heidelberg: C. F. Winter. 1851.  
*Journal of Rational Medicine.* Edited by Dr. J. HENLE and Dr. C. PFEUFER, Professors of Medicine in the University of Heidelberg. New Series. Vol. I., Part 1. 1851.



6. *Denkschriften der Kaiserlichen Akademie der Wissenschaften.* Erster Band. Und Tafeln zu den Denkschriften, &c. Erste Abtheilung.

*Transactions of the Royal Academy of Sciences of Vienna.* One volume, imp. 4to, and a volume of Plates. Vienna. 1850.

7. *Anormal Nutrition in Articular Cartilages, with Experimental Researches on the Lower Animals.* By P. REDFERN, M.D., &c. Edinburgh: Sutherland & Knox. 1850. 8vo, pp. 86.

8. *Pathologische Histologie.* Von Dr. GOTTLIEB GLUGE, Professor der Physiologie und Pathologischen Anatomie an der Universität zu Brüssel, &c. Mit 12 Kupfertafeln und Tabellen. Jena: F. Mauke. 1850.

*Pathological Histology.* By Dr. GOTTLIEB GLUGE, Professor of Physiology and Pathological Anatomy in the University of Brussels. Jena: F. Mauke. 1850. Folio, pp. 77, with 12 Copperplates, and Tables.

9. *Traité Pratique des Maladies Cancéreuses et des Affections Curables Confondues avec le Cancer.* Par H. LEBERT, Docteur en Médecine, Chevalier de la Légion d'Honneur, &c. Paris: J. B. Baillere. 1851. 8vo, pp. 892.

IN no department of science do we find that research is being prosecuted by contemporary labourers with more energy and zeal, or with more successful results, than in that which may be included under the general term of micrology. The list of authors and works before us is but a selection of some of the more important contributions to this department of literature with which the British and Continental press has presented us in profusion within the last two years. So great indeed has been the activity of publication in the field of micrologic investigation, that, as it would be wholly beyond the limits of our Journal to present our readers with a *resumé* of all that has appeared in the pages of the numerous periodical and occasional works, we are obliged to confine ourselves to a brief outline of the more important results at which the chief observers have arrived.

As we survey the labours of the various British and Continental schools, and glance at the contributions to histological science which pour in from all quarters, we still remark with regret the absence of researches emanating from Irish physicians; and though indications are not wanting to show that efforts are at length being made to supply this great deficiency, we cannot congratulate ourselves that any exer-

tions commensurate with the vast importance of the subject, and our long-continued neglect of it, have been undertaken by any of our medical institutions, whether universities or colleges, whose status and authority could not fail to have a decided influence in stimulating the energies of the junior members of the profession, if the path of research were indicated to them, and encouragement held out to those willing to devote themselves to this special branch of study. To these institutions are committed the scientific interests of our school; they possess scientific and literary functions and duties, as well as corporate. Have they neglected their stewardship? However this question be answered, it cannot be unknown to the readers of this Journal, that we have on several occasions forcibly called attention to the anomalous position of our school with regard to a subject now engrossing so much attention in all the cities of Europe. We have endeavoured to keep our readers *au courant* with the most recent advances in normal and pathological histology; and we have repeatedly pointed out our own backward condition in this department of medicine.

As an example of what efforts have been elsewhere made to promote and encourage the prosecution of micrologic investigations, we may quote the following passages from the Preface of the Histological Catalogue of the London College of Surgeons:—

“ The Council of the College of Surgeons, sensible of the advantages which have been derived, and are likely to accrue from the employment of the microscope in the study of anatomy, physiology, and pathology, have formed, under the name of the Histological Series of the Museum, a collection of preparations of the elementary tissues, both healthy and morbid, of animals and vegetables, adapted to illustrate the results and uses of microscopical investigation.

“ The Council deem it worthy of notice, in connexion with the manifold obligations which science owes to John Hunter, that the nucleus of this series, consisting of 150 specimens prepared by William Hewson, constitutes an original portion of the Hunterian collection. But it was in the year 1841 that the Council were first enabled to prosecute effectually the design which they had conceived of aiding and encouraging the use of the microscope; and with this view they purchased the collection of the late Dr. Todd of Brighton, consisting of 1558 specimens of comparative anatomy, natural history, and pathology. Having thus far succeeded in securing the foundation of the histological series which they proposed, they next obtained, by purchase, in the year 1846, 2500 specimens of the elementary tissues of plants and animals, prepared by Mr. Quekett, previously to his appointment as the Assistant Conservator. In the ensuing year Mr. Quekett commenced the arrangement of the new



series, with a view to its explanation and description, and in order to supply the want which had become apparent in the progress of his work, of systematic continuity and scientific completeness, adequate to the contemplated purposes of the collection, his labours were directed to this scarcely less than indispensable aim, and their result was the addition to the collection of 1280 specimens.

“ The Council desire also to acknowledge the liberality of various donors, whose valuable contributions have further enriched this department of the Museum; and they have the satisfaction of announcing that the histological department now contains no less than 6838 preparations, forming a collection calculated to meet the most pressing needs of the student of microscopical anatomy.

“ The Council, in pursuance of their plan of providing the main requisites for instruction in this branch of scientific inquiry, and having had the good fortune to secure the services of Mr. Quekett, whose eminent ability in microscopical researches is universally acknowledged, had the satisfaction of appointing him, in the year 1844, to deliver annually a course of demonstrations, with a view to the exhibition and connected description of the collection, and to the explanation of the method and resources of microscopical study.”

With such substantial encouragement, and under the auspices of such an institution, we cannot wonder that micrology has long held a high position in the London school, especially when we consider that other educational establishments, though their efforts have not been made on such an extensive scale, have done much to foster this department of study. Thus, in the chief hospitals and schools of the English metropolis, we find that the microscope is an inseparable attendant in all clinical and anatomical investigations, where it can be employed with utility. To all who are in any way familiar with the present position of medical research, it is needless to point out the fact that in all the medical schools of Europe of any repute, the claims of the microscope have been long fully recognised. Its utility in anatomical, pathological, and clinical studies has been long since most indisputably established, and put entirely beyond all question or cavil; it is now ranked amongst the indispensable means of prosecuting investigations into healthy and diseased structures. Those who may doubt these statements will only convict themselves of a wilful ignorance, worthy alike of pity and contempt. The proof of the correctness of our assertion lies within the reach of all who will take the trouble to examine the periodical literature of the day, whether British or Continental. For our own part, we have, as far as in us lay, done that which we considered to be a duty that we owed to the scientific interests of our school. We have repeatedly urged the claims of the microscope, we have called

the attention of the leading and influential bodies of the profession in Ireland to our backward condition with regard to this department of study, and we have pressed upon them to take some steps to meet the requirements of modern scientific anatomy and pathology, knowing full well that combined action, and the influence of position and authority, would in a short period effect what could otherwise not be accomplished by years of unaided private exertion.

The histological catalogue of the London College will be found very valuable to the practical micrologist. The volume contains the description of 404 specimens of vegetable elementary tissues, and of 762 of those of animals. It is illustrated by eighteen plates, giving representations of more than 400 of the preparations described. To the student of minute anatomy these figures will be eminently useful. We shall not allude to them in detail at present, but in the progress of our examination of the labours of the other histologists whose works will come under review, we shall take occasion to illustrate and elucidate certain disputed points, by reference to Mr. Quekett's researches. We shall consider the contributions to histology under the two great heads of Normal and Pathological, and these again under certain subdivisions.

**NORMAL HISTOGENESIS.**—On the subject of normal histogenesis, or that process by which organized amorphous fluids are transformed into tissues possessing definite morphyic properties, no researches of a more recent date than those which were noticed in our last number<sup>a</sup>, have met our eye. Under the head of general histology (*allgemeine gewebelehre*) will be found in Dr. Gerlach's work a brief but satisfactory *resumé* of the condition of our knowledge of the various forms of cells, of the elements of lymph, chyle, blood, pigment, epithelium, and the elastic, fatty, and areolar tissues.

Much obscurity still rests on the origin of the blood-cell, and many conflicting opinions as to its manner of formation are entertained. Thus, by some it is stated to be a metamorphosis of the embryonal cell; by others, the colourless corpuscle is said to give origin to the red; while again the separate and independent growth of both these elements in an amorphous blastema is maintained by some physiologists. We shall not now enter on the discussion of these various views, which will be found briefly but clearly stated in Dr. Gerlach's book: we prefer to wait for the appearance of the first volume of Kölliker's work, when we will consider the subject in *extenso*.

<sup>a</sup> See Dr. Lyons' Report on the "Tissu Cellulaire Artificiel" of Melsens, p. 237 of our present volume.



Much attention has of late been directed to the spleen, an organ exerting considerable influence in the process of sanguification, but very opposite views are entertained as to the part played by it. Thus Kölliker and Ecker advocate a retrograde metamorphosis of the blood in its passage through the organ; while Gerlach maintains, as the result of his investigations, that a new formation of blood-cells takes place in the spleen. We shall not at present enter further into this controversy, which in no small degree now engages the investigators of the German school, each side of the question, as usual, being supported by no mean authorities. As all observed facts, however, must be considered of importance, we shall make a brief extract from the memoir of Dr. Otto Funke, who has communicated to the *Zeitschrift für Rationelle Medicin* a series of observations on the blood of the splenic vein, an investigation to which he was led, as he states, by seeing that the principal portion of the attention of all inquirers was directed to the arterial supply and the parenchymatous tissues of this organ. His researches were made on the blood of seven horses, of which four were in good health, and three laboured under glanders. A drop of the blood of the splenic vein being placed under the microscope, without the addition of any other fluid, exhibited the following appearances:—The coloured blood-cells were for the most part heaped together in irregular, thick masses, containing, some from six to twelve blood-cells, others a very much larger quantity. Oblong spaces were formed by these masses, which inclosed certain other morphologic elements. This cohesive property of the blood-cells was lessened somewhat when the fluid had been allowed to stand some days. The number of the colourless cells was very great, in some instances being one-fourth, or even one-third of the entire blood corpuscles. Heaps of from thirty to forty colourless cells were to be seen held together by a pale granular mass. A third description of element was also found in some quantity, namely, granular cells, which were either isolated, or collected into groups of three or four. Their enveloping membrane could be readily seen, and was separated by a free circular space from the central heap of granules. This cell membrane was spherical, transparent, and sharp in outline; it included a varying number of granules, which were strongly refractive, of dark outline, grouped in different ways, and varying in number from four to ten. These cells, as the author remarks, are similar to those found in the Malpighian vesicles by Ecker, who states them to have a diameter of  $0.020^{\text{mm}}$ . In no instance has Funké met with the pigment granule containing cell, described and figured by

Kölliker and Ecker. The next element noticed by Funke is the *blood-corpuscle-containing-cell*. He states that, after the examination of more than one hundred specimens, conducted with the greatest accuracy, he only found one instance of this cell. In the blood circulating in the spleen he has observed them in abundance, and from their comparatively rare occurrence in the blood after it leaves the organ, he was led to the belief that, whether they are to be regarded as conditions of origin or of annihilation of the blood corpuscle, we must consider them as having fulfilled their destination within the parenchyma of the spleen, subsequent to which they disappear; were this not the case, we should find them in the portal blood, but neither Lehmann nor former observers have noticed them in this situation. Ecker has seen them occasionally in the splenic venous blood, but by no means constantly. Another element observed by Funke was large oblong or oval bodies, of sharp outline, and regularly granulated surface. The size of these bodies varies a good deal, some were so large as to occupy nearly one-half the field of the microscope. On their exact nature he has not arrived at any precise opinion; their regular form, which is not changed by compression, and their sharp outline, imply a cellular structure. He has found them in fresh blood—a proof that they cannot be the result of a commencing decomposition. By the addition of acetic acid to a drop of splenic venous blood, the following changes were observed:—The red blood corpuscles were for the most part rapidly dissolved, without any nucleus being left: a certain proportion of them resisted the action of the acid: the insoluble corpuscles were observed to be those which were smallest and least intensely coloured. Gerlach has made similar observations. The colourless corpuscles were rendered entirely hyaline by the same re-agent; the cell membrane resisted solution for a very considerable period. The nucleus, now rendered visible, was in most of the cells spherical, or elliptical and eccentric; but a few showed double or treble nuclei.

The most remarkable of all the phenomena observed is that which resulted from the action of water, one which, as the author remarks, would be sooner expected in any other animal fluid than in fresh blood, namely, "*the crystalization of the blood of the splenic vein, in the strict sense of the term.*"

A drop of the blood of the splenic vein being placed on a slide and flattened out, and water being added, if the borders of the heaps of blood-cells be watched, they will be observed to change suddenly: thus while some of the corpuscles disappear, others acquire a dark, thick border, become angular



and lengthened, and extend themselves into small sharply-marked bars. In this manner is formed an enormous number of embryo-crystals; these extend more and more in length, while their transverse diameter remains unchanged, or but slightly increased. The entire field becomes soon filled with a thick network of crystals, crossing each other in all directions, and so rapid is their formation, that one is scarcely able to follow with the eye a crystal from its first appearance to its complete development. At the moment of crystalization indications of its occurrence may be observed by the naked eye, without the aid of the microscope, the dark-red colour of the mass of blood being changed into a clear brick red. The crystals, when collected together, presented an intensely red colour. Besides the crystals now described, a second kind was produced by the same treatment, distinguished from the first by marked difference of form. Along the borders of the glass, and in the same drops of blood which gave the needle-shaped crystals, a mass of rhomboid tables was developed, often of extremely large size, so as nearly to cover half the field. These crystals shot forth usually in the homogeneous watery-blood solution, in which no red corpuscles remained visible. The single tables were of various dimensions, the most of them being very regular in form; they presented acute and obtuse angles, and the mean of several measurements, with Schmidt's goniometer, gave  $120^\circ$  for the obtuse, and  $60^\circ$  for the acute angles, in which they differ remarkably from cholesterine tables, with which, at first sight, they might be readily confounded. Some four-sided prisms were also observed, but in small quantity. It was found that alcohol and ether likewise induced these singular forms of blood crystalization. The author was unable to produce crystalization in the blood of any other vessel; and we have ourselves experimented with alcohol and water on some specimens of blood, without meeting any crystalline forms. Lehmann has, however, in one instance, noticed crystalization in portal blood, on the addition of water, which Funke is disposed to attribute to the intermixture of the blood of the splenic vein with that in the vena porta. Funke has observed these crystals in blood taken fresh from the splenic vein of a dog, also in carp and other fish. His investigations into their chemical constitution are as yet incomplete; his opinion, however, is that they are due to some highly crystalizable condition of the hematosine of the splenic blood—a supposition which, we make no doubt, is correct. We are already in possession of some facts with regard to the crystalization of this substance to which it may be as well to make a passing reference at present, if only

for the purpose of grouping together what is known on the subject.

Virchow has called attention to certain crystals which he denominates hematoid; they are to be found in all situations in which masses of extravasated blood are undergoing a process of change as in apoplectic clots; and they were long ago described by Sir E. Home as occurring in thrombus. There is, at all events, reason to believe that it requires a stasis of blood for a certain period (undetermined as yet) to insure their formation. We have ourselves met with them in fluid drawn from a tumour of considerable size, occupying the anterior portion of the shoulder and part of the thorax. This fluid is of a dark-brown tint, coagulable by heat, which caused it to lose a great portion of its colour, and under the microscope numbers of these peculiar rhomboid crystals were to be observed. Again, in some specimens of blood, we may observe granular non-crystalline bodies, varying in size from that of a minute molecule to that of three, four, or even more red blood corpuscles aggregated together. These bodies present usually an intense red colour, and most probably are a variety of hematosine. We have thus three varieties of this substance occurring extra-corpuscular and in a solid form, namely, the granular non-crystalline; the rhombic prisms (Home and Virchow); the acicular, and those in rhombic plates (Funke); the last, as we have seen, having a special locus of development in the blood of the splenic vein<sup>a</sup>.

We have yet much to learn on this subject, before we can arrive at any precise conclusions as to the physiological indications furnished by this remarkable condition of the blood after its passage through the spleen.

Taking the portions of Professor Kölliker's work now before us as a specimen, we may confidently anticipate that, when the first and subsequent volumes shall be issued, we shall be in possession of a very complete system of microscopic anatomy. The portion actually published does not complete the second volume; yet we find an aggregate of no less than 900 pages devoted to the minute anatomy of the skin, the muscles, the bones, the nerves, the digestive and respiratory systems, all most ably treated, and leaving little to be desired whether for lucid description or excellent illustration by woodcuts.

Of course, much of a systematic treatise like the present is

<sup>a</sup> See Dr. Otto Funke Ueber das Milzvenenblut (mit Taf. i.): Zeitschrift für Rationelle Medicin, Neue Folge, 1 Band, 1 Heft. 1851, p. 172. See also Dr. Sanderson's paper "On the Metamorphosis of Coloured Blood Corpuscles," in the second volume of the Monthly Journal of Medical Science for 1851.



necessarily taken up with descriptions and details of structure already perfectly familiar to all well-informed inquirers in this department: we have, therefore, only to remark, with regard to such portions, that the method and arrangement will be found clear and satisfactory, the descriptions complete, and the evidences of bibliographical research, and acquaintance with the investigations of contemporary labourers, most creditable to the author. Indeed, we may remark, *en passant*, that it is only in extremely rare instances that any omissions or deficiencies in this respect can be brought to the charge of writers of the German school. Professor Kölliker is long known as a most industrious and successful micrologist, and we find almost every section enriched with the results of his own investigations; and we shall take occasion in the course of our review to call attention to the more important subjects which his labours have elucidated.

The first section is devoted to the anatomy of the skin; we would recommend it to the careful study of all who purpose employing the microscope in the investigation of diseased structures, no class of which is capable of presenting so many embarrassing and difficult points as those which take their origin in affections of the integument and its appendages. It would appear almost superfluous to say that, without a certain preliminary amount of tolerably accurate acquaintance with the healthy structures, it would be useless to commence the study of disease. But in the department of histology, at all events, no error is more common, or leads to results more unsatisfactory. Thus, it is quite common for those who have no knowledge whatever of the natural conformation and minute anatomy of the external tegumentary apparatus, the mucous membrane, or the glandular system, to undertake the microscopic examination of diseased growths in connexion with any of their structures with a *toupet*, which is only commensurate with the failures to which such an ignorant and presumptuous proceeding must invariably lead. And yet we too often find the results of the careful and conscientious micrologist, who has fretted his hours over the midnight lamp, called in question by the superficial amateur, who thinks that a glance at an object through the microscope is sufficient to inform him of all its general and special pathological relations, who can believe only in special and invariable types of form as sufficient guarantee for diagnosis. There is but one safe guide in microscopic, as in all other means of investigation, namely, to make a close and adequate study of normal structure the introductory step to pathological inquiry.

In the section on the anatomy of the skin we find the following observations on the flat muscles. According to his investigations, the author finds that the flat muscles occur in the skin much oftener than has been hitherto supposed: not only do they occur in the tunica dartos, as Todd and Bowman, and Valentin announce, but also in the subcutaneous areolar tissue of the penis and perineum, in the areola of the mamma in the nipple, in all hair-covered places, in the hair follicles, and in the proper corium.

In the subcutaneous areolar tissue of the scrotum, the penis—the prepuce included, and the anterior part of the perineum, the flat muscles are, almost without exception, unusually well developed, so that the larger bundles of them can be easily seen with the naked eye, and their arrangement may be followed out. The muscular fibre-cells described by the author (*Zeitschrift für wissenschaftliche Zoologie*, Bd. 1), and which he considers to form the muscular bundles by their apposition, he has only been able to isolate in a few cases, although the bundles as a whole, when they are surrounded by only a thin layer of areolar tissue, can be readily recognised with or without the addition of acetic acid. We may easily recognise their well-known longitudinal striation and fine granulation (but without large fat granules); further, a large quantity of long and narrow nuclei, sometimes slightly tortuous, from 0.011—0.013''' in length, and besides, a small admixture of areolar tissue, furnished with fibre-nuclei, which appears to constitute a sort of delicate outer coat around the bundle; also, but rarely, and as the author has once seen in the dartos, tortuous nuclei in the interior of the bundle. The size and number of these somewhat flattened bundles are most remarkable in the dartos, where they measure from  $\frac{1}{3}$  to  $\frac{1}{2}$ ''; they are smallest in the perineum and in the prepuce.

With regard to their disposition it is to be remarked, that they lie partly in the neighbourhood of the vessels and nerves, partly more isolated in the areolar tissue, uniting together (anastomosing) so as to form a network; they also run parallel to the raphe of the scrotum and the long axis of the penis, and in the last-named situation they are often crossed by strong muscular bands. Moreover, this network is disposed in layers connected to each other, so as to constitute in the dartos a true muscular coat, which, on a small scale, resembles that of the bladder. This coat is separated on the inside from the deeper parts (tunica vaginalis communis) by a fine layer of areolar tissue, on the outer side it is in contact with the corium (here very fine), and with the hair-follicles and sebaceous glands



found in this situation. In the areola likewise, and in the nipple, especially in the female sex, these flat muscles are generally remarkably developed. They appear as bundles of the same form as in the dartos, but without a coating of areolar tissue and fibre-nuclei. They are arranged in a circle in a layer situated near the base of the areola, and by reason of their breadth (reaching to  $\frac{1}{3}$ "') and their transparent yellowish-red colour, they are visible to the naked eye. They run throughout partly in a circular manner, and partly dip in and become united to a thick network, through the meshes of which the lactiferous ducts pass. Finally, the flat muscles are met with in the hair sacs, and in all situations where hair is to be found; they have been observed in the fore-arm, upper arm, the breast in both sexes, in the anal region, the mons veneris, the labia majora, the abdomen, the back, the thigh and leg; whereas in places not furnished with hairs, as the sole of the foot, and the palm of the hand, they appear in flat broad bundles, 0.10—0.16"', whose elements are as clear as in the dartos, and which can in favourable cases be isolated. As far as the author can ascertain, these muscular fibres are placed beside the upper part of the hair sac and sebaceous follicle, springing from the upper part of the corium, and passing obliquely from the outside to the inside of the hair sac, and surrounding the sebaceous follicle.

Passing over the subject of the vessels of the skin, we come to that of the distribution of the nerves.

In those parts in contact with the epidermis, the skin is extremely rich in nerves, as much so, in fact, as any structure in the body, while its deeper surface is equally remarkable for the paucity of the nerves distributed to it. In the *paniculus adiposus* and the superficial fascia, nerves may be recognised in their passage through to the corium, to the hair sacs, the glands, and *pacinian* bodies; but there can be no doubt that nerves are found in the neighbourhood of vascular expansions, and of the flat muscles of the dartos, of the hair sacs, and the areola *mammæ*, which are capable of contracting, partly under the influence of psychical causes, partly by galvanism. Under the papillary layer of the cutis, a rich terminal plexus is formed by repeated anastomosis, from which a loop is sent into each papilla. A section of the cutis from the palm of the hand, macerated slightly for a few days, and treated with a solution of soda, will show this arrangement very beautifully. Besides the loop, two other forms of termination are to be observed, that by subdivision of the nervous filament into two or three, and that in which a knot is formed; the last form had been observed by Gerber in

animals. A representation of these three conditions is given. In the first figure we find a twofold partition of a fine nerve-fibre of the terminal plexus—from the human glans penis; in the second, a threefold partition is observed. This specimen was taken from the conjunctiva of the globe of the eye. The third figure shows the nerve-knot, with one afferent and two efferent filaments; these bodies were found in the areolar tissue of the eyelid. These knots are of a circular form, 0.020—0.028" in diameter, and consist of one or more nerve filaments knotted together. These filaments vary in diameter from 0.002 to 0.003". On a small scale they resemble much the vascular knots (Malpighian bodies) of the kidney, or the knots of the sudoriparous glands. In general, one nervous filament enters and one leaves the knot, but in other cases there will be found two or even four passing out, while one only goes into the body—the conclusion from which is, that they are the result of partition. Two points, as Professor Kölliker remarks, remain still to be cleared up, firstly, whether, besides the loop, free terminations also are to be found; secondly, what relation exists between the forking filaments and those of the terminal plexus, and on neither of these points have we yet sufficiently positive data<sup>a</sup>.

We cannot dwell at greater length on the portion of Professor Kölliker's work devoted to the subject of the integument and its appendages. We must only recommend its careful perusal to all interested in the study of cutaneous affections, especially those which require the aid of the microscope for their proper solution.

Very extensive sections are occupied with the anatomy of the muscular and osseous systems, but we are unwillingly compelled to pass them over, in order to make a few extracts from the fourth book, devoted to the nervous system. The microscopic study of the nervous system is one of considerable difficulty, and we doubt not that the practical hints, mixed up with the descriptive matter, will be very welcome to the working histologist. After noticing the several histological elements which enter into the composition of the nervous substance, Professor Kölliker proceeds to remark:—The membrane or coat of the nerve-tubes, discovered by Schwann, is in most nerves extremely difficult to demonstrate. We may study it best in the roots of the cerebral nerves (as the motor oculi) and the spinal nerves, in which, by reason of their greater thickness, it is readily distinguished from the included substance, appearing

<sup>a</sup> See the account of Wagner's recent investigations, given in our present Number.



under the form of two pale streaks of 0.0002" diameter, on either side of the fibre, and by means of gentle pressure the contents may be forced out. This cord is also very readily seen in the thickest tubes of the central organs, such as the medulla oblongata, on the addition of caustic soda; this re-agent renders fluid the coagulated contents of the fibres, which escape here and there through rents in the membrane, or at the end of the fibres, often so that nothing remains but the empty tube of membrane, under the form of pale, slightly granular streaks. In the peripheral nerve-fibres we cannot demonstrate the membrane without further treatment by re-agents, except when, by accident in particular places, the contents become separated by pressure; it then appears as a continuous, clear, band-like mass, more rarely as a tube of the diameter of the free fibre.

Boiling in absolute alcohol and glacial acetic acid, treatment with caustic soda and with fuming nitric acid and potash, were found to facilitate the demonstration of the membrane. In the first instance, after removal of a certain portion of the fat of the nerve-tube by the alcohol, the membrane appears as a dark limiting line; after boiling for a short time in acetic acid, which gives rise to the formation of numerous fat crystals, the remaining portion of the contents escapes, with the exception of the central fibre. When boiled with alcohol, and subsequently treated with cold caustic soda, the nerve-fibres exhibit their coats with pale, often undulating, outlines. The coat is best seen, however, by the action of fuming nitric acid and the subsequent addition of caustic potash; the fat escapes from the nerve-tubes in pale drops, the axis cylinder is dissolved, and the investing membrane remains empty, coloured yellow, and when measured, varies in thickness from 0.0008."

Whether the finest nerve-tubes of the central organs and the peripheral nerves possess a structureless coat, is still undecided. In both situations, nerve-fibres of only 0.002" in diameter can be accurately investigated by either of the methods mentioned above. In fine tubes of 0.001" we may occasionally, as the result of pressure, observe free portions of the investing membrane, though, as Henle remarks, it is impossible to come to any very decided result, but, from analogy, Kölliker thinks we may conclude that even the finest tubes possess a sheath.

Some authors describe nuclei in the investing membrane of the nerve tubes, Schwann has found them in embryonal nerve-fibres, and also in the fully-formed fibres of the vagus of a calf; and Rosenthal has seen them in the cerebro-spinal nerves. Henle and Kölliker have but rarely met nuclei in these situa-

tions, though the latter considers it as certain that in the terminal nervous expansions in all classes of vertebrated animals they occur here and there in the coats of the fibres; but very little has been hitherto known as to the chemical nature of the nerve sheaths. Kölliker has found that they are not dissolved by boiling for five minutes in glacial acetic acid; boiling in water, alcohol, and ether, has also no effect on them. By Pettenkofer's test (sugar and concentrated sulphuric acid), which, according to Schultze, imparts a red colour to elaine and the compounds of protein (but not to the substances yielding gelatine or to elastic tissue), it remains without change of colour, thus contrasting clearly with the red tint acquired by the medullary substance. By nitric acid and potash the sheath becomes yellow after some time (xantho-proteic acid), and, according to Paulsen, this effect is also produced on elastic tissue. In accordance with these results, the nerve sheath appears most nearly to approach the elastic tissue, only that the latter is not so resistant to the action of alkalies.

The medullary matter of the nerves, on account of the extreme readiness with which it undergoes change, is one of the most difficult structures of the body to be examined. In order to see it in the normal condition, it is necessary to place under the microscope a portion of a nerve from an animal just killed; we thus have an opportunity of examining some fibres entirely unaltered, but, by the drying of the nerves, they become very quickly changed. An examination of the nerves may be conducted on the transparent parts of certain animals, either dead or alive,—frogs, for example,—by extending them on warm glass slides, and treating them with chromic acid, which preserves the fibres of the brain. The medullary nervous matter is a viscid fluid, extensible, in consistence somewhat approaching to oil of turpentine; when subjected to pressure, it assumes all possible forms, appearing in spheres, threads, &c., pale or dark in outline. Its chemical nature is not very well made out, though it appears certainly to contain all the fat of the nerve-fibre. Nerves treated with boiling ether and alcohol retain manifestly a portion of their contents, which swells upon the addition of acetic acid. When thus treated, if further acted on by sugar and concentrated sulphuric acid, they exhibit the medullary matter, coloured intensely red or yellow, thus indicating the presence of albumen, as there can be no oil remaining. Further, as we have seen in nerves treated with alcohol, and subsequently with nitric acid and soda, the medulla becomes orange (xantho-proteic acid), a further proof of the presence of albumen.



Much controversy has arisen on the subject of the axis-cylinder, by far the most difficult element of the nerve to be submitted to satisfactory demonstration. Kölliker sums up his opinion thus: "*The axis-cylinder is constantly found in every nerve-tube, both central and peripheral, in the fine as well as the large fibres, and certainly exists before death, and independent of the application of any re-agent.*" In the human nerves, in the brain and spinal cord, where it is usually looked for, the axis-cylinder is, in the opinion of Professor Kölliker, to be found with certainty by sufficiently careful examination, and more readily in the central parts, where the abundance of the neurilemma and the delicacy of the sheath oppose but little obstacle to the bursting of the tubes. It appears as a pale, clear, round, or slightly flattened fibre; here and there it is ribbon-like, but can be found even in the finest tubes. The mean diameter of the axis-cylinder is about one-third of that of the nerve-tube; in opposition to the opinions of Donders and Moleschott, Kölliker considers the axis-cylinder as being totally destitute of fat, as, in his experiments, it has not undergone any change except a slight shrinking on the application of ether and alcohol; he regards it as a protein compound, differing from fibrine in that it is insoluble in carbonate of potash, and is much more resistant to the action of acetic acid and the caustic alkalies. As already remarked by Virchow, it has certain analogies with the substance which enters into the composition of muscular fibre: thus, the cerebral matter is hardened by carbonate of potash like the component of muscular fibre; the latter, however, is more readily soluble in caustic alkalies and acetic acid, and is reddened by Pettenkofer's test. From all his inquiries, Professor Kölliker is led to the very decided opinion which we have already cited, that the axis-cylinder is no artificial product, but an actual constituent of the living nerves. As we are unable to devote further space to a more extensive abstract from Professor Kölliker's article on the nervous system, we must only recommend those who are anxious to make themselves acquainted with the most recent researches on this important subject to refer to the work itself, where it will be found treated with very considerable detail.

The first division of the second half of the second volume of the Microscopic Anatomy is occupied with the description of the minute structure of the digestive and respiratory systems. Under the former head the anatomy of the teeth is included, and this, as well as the other portions of this division, are very carefully and fully considered; some of the illustrations are

most excellent examples of the high state of the art of wood engraving in Germany at present<sup>a</sup>.

The article on the lungs is not as full as we could wish, and the subject is by no means so well worked out as we would be led to expect from the nature of those which we have already noticed. This is the more to be regretted as we feel quite confident very much indeed remains yet to be done with regard to the micrological pathology of these organs; preparatory to such a step nothing can be more important than a thorough and complete investigation of their normal structure; and it would be extremely difficult to name a really complete essay to which we could confidently direct the student who desires to be acquainted with the actual condition of our knowledge on this subject. On the whole, however, as we have already stated, we know of no work which, when completed, will present a more satisfactory view of the state of histology, and we anxiously look forward to the publication of the remaining parts.

Our limited space compels us to close here for the present; in our next we shall resume with the second portion of the inquiry we have laid down for ourselves, namely, the subject of pathological histology.

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*On the Pathology and Treatment of Stricture of the Urethra.* By JOHN HARRISON, F. R. C. S. E., &c. London: Churchill, 1852. 8vo, pp. 104.

TRULY we live in an age of unprecedented intellectual energy, and what better evidence, may we ask, can be adduced in proof, than the increased duty which has of late years been imposed upon the press? Formerly it lay in a comparatively lethargic condition: in the present day it yields productions in prolific abundance, sufficient to satisfy the desires of the wildest bibliomaniac! Now to no department of literature does this observation apply with so much force as to the medical. Some fifty years ago, the members of our profession displayed a marked reluctance to write, and seemed timid in committing to paper the results even of their most matured experience; how different is it now, when the "cacoethes scribendi" seems to be a continued epidemic! If those who belonged to the last half century are to be censured for doing too

<sup>a</sup> An inspection of the Transactions of the Academy of Sciences of Vienna will show to what perfection lithography is brought in that part of Germany.



little, assuredly those of the present should be condemned for doing too much. There is a vast difference between quality and quantity. We are far from wishing to disparage modern writings, many of which rival, equal, or surpass those which will ever stand as monuments of the genius of some who have gone before us; but it is impossible to behold the heap of book-trash, not monthly nor weekly, but almost daily, poured forth from the Press, without feeling disgusted, and exciting us from time to time to try and check the tendency of what may in truth be termed a mischievous mania.

The desire for book-making is so strong, and the ambition to figure as an author so unconquerable, that men are ready to sacrifice the interest and dignity of their profession, and to subscribe the silliest productions if their foolish pride be only gratified thereby. The choice subject for this worthless scribbling seems to be diseases of the urinary organs, and perhaps we could not produce a better example of unjustifiable and worse than useless book-making than the volume which lies before us. We must, however, do the author the justice of admitting that the quality of the matter, the character of the composition, the style of the phraseology, and the execution of the plates in his work, are in the happiest state of harmony. As a specimen of the elegant phraseology it contains, the following sentence will suffice: "Some writers have believed that it may originate in too frequent sexual intercourse, or in prolonged erections from repeatedly toying with women." In these choice terms the author alludes to the causes of stricture.

Surely some kind friend might have told Mr. Harrison, if he did not know it himself, that the works of Brodie, Guthrie, and the many other highly distinguished men who have written on this subject, do not require the addition of his experience as here published. Yet the author may plead in excuse, that his production is intended chiefly to "assist the younger members of the profession." This is a very laudable desire, no doubt; but what assistance do they need, may we ask, when they can procure the means of learning as well as Mr. Harrison himself? In fact, if by assistance he means the doing away with the necessity of perusing the works of the standard writers, then such must be most injurious. Yet the author may argue, that a compilation of other men's opinions, or a condensation of the matter contained in other works, must be admitted to be useful, at least to the student. This we allow to a certain extent; but Mr. Harrison's volume is, we contend, neither a compilation nor a condensation, it is far too brief for the one, too incorrect for the other. Many of the subjects of most

importance connected with stricture he disposes of in the most summary manner, others he slurs over with the most provoking disregard for accuracy of description; while others again he gets rid of with truly magical celerity. In a word, we regard the volume as a glaring attempt at book-making.

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*The Dictionary of Domestic Medicine and Household Surgery.*

By SPENCER THOMSON, M. D., L. R. C. S. Edinburgh.  
London: Groombridge and Sons. 1852. Royal 12mo,  
Part I. To be completed in twelve monthly parts.

It is a dangerous undertaking for a physician of standing and character, especially if already favourably known to the profession by his writings, as Dr. Thomson is, to publish a popular medical work. Such books are always regarded with suspicion, and if we are to judge from the history of the literature of our profession, we must say justly so. But so much the more hazardous the undertaking, so much the greater honour to him who succeeds; and in our judgment Dr. Thomson has fully succeeded, in the Part of his proposed Dictionary now before us, in conveying to the public a vast amount of useful professional knowledge, without in the least degree trenching on the legitimate rights of medicine. We feel confident that the most certain way of disarming quackery of its greatest stronghold is to diffuse amongst the public just notions of what our science really consists in, and to remove completely the small remnant of that veil of mystery which still envelops medicine—the legacy of our forefathers, adopted by them in an age when the public creed consisted in *omne ignotum pro magnifico*. With these ideas, then, we rejoice at the appearance of the work here commenced, which to the profession also will not be without its uses, as it contains some most valuable observations on hygiene, a subject too much overlooked in strictly medical books.



*Gerichtliche Sectionen des menschlichen Körpers Dritte bedeutend vermehrte und verbesserte; zum Gebrauch für Aertze, Wundärtze, und Juristen bearbeitete auflage.* Von Dr. CARL ERNST BOCK, Professor der pathologischen Anatomie an der Universität Leipzig. Leipzig: Jackowitz, 1850. 8vo, pp. 285. Mit vier colorirten Kupfertafeln.

*Juridical Sections of the Human Body, for the use of Physicians, Surgeons, and Jurists.* By Dr. BOCK. Third Edition, enlarged and improved.

THE importance of post-mortem examinations as a means of promoting our knowledge of disease, and of improving its diagnosis and treatment, is acknowledged on all hands; it may, indeed, be questioned whether, in modern times, its efficacy has not been overrated by the many, who, confounding one of the means with the end, identify morbid anatomy with pathology. If cadaveric inspections be indispensable to the medical practitioner in recognising the individuality, nature, and cure of morbid actions, they are not less so when he is called on to discharge his forensic duties. The problems which in the latter capacity he is expected to solve, are fully as complex, and their solution as important to society, as any which present themselves in his ordinary relations. In the fulfilment of his duties in these respective positions, it should never be forgotten that the objects in each are totally distinct. While as engaged in the cure of disease, he seeks the attainment of the ends above alluded to; as a medical jurist, on the contrary, he aims for the most part to establish with precision the *cause of death*, with a view to afford assistance in the settlement of questions of alleged criminal responsibility. He seeks not to determine of what disease his *patient* has died, and to apply the hints which he gathers from the autopsy for the improvement of his future treatment in similar cases, but rather to ascertain, as one qualified to pronounce a public and scientific opinion whether his *fellow-citizen* has been snatched from life by the stroke of sudden but natural disease, or has been the victim of criminal or other violence. The details, therefore, of which he seeks cognizance in the dissection must be essentially different in either case; as well, also, as the nature of the conditions which usually present themselves for investigation. The inspections of the physician more frequently regard diseases which have slowly extinguished life: those on which, in his quality of medical witness, he pronounces judgment, are, on the other hand,

for the most part, rapidly or suddenly fatal. The latter section also presents the embarrassing peculiarity, that it constitutes a class of diseases which, viewed as affections frequently latent, are compatible, not alone with a continuance of life, but with the maintenance of apparent health; and, consequently, the causation of death is to be sought not exclusively in the character of the lesions discovered in the organ affected, but also in the functional disorders produced in those physiologically associated with it,—in the resulting disturbance of the circulation in such organs, and in the collateral medical facts observed by the inspector or others, previously to death.

The forms of violence, again, which the medical jurist most usually encounters, such as suffocation, stabbing, strangulation, poisoning, &c., are not those which frequently present themselves in daily practice, and with which the medical man is, therefore, more or less familiar. As completing the contrast, we may add, that while in ordinary dissections the practitioner has generally the advantage of the antecedent history, and, as far as may be, of all the medical facts which tend to guide him, the reverse is too frequently the case in juridical inquiries, the most important guiding links in the medical history being either wanting or so meagre as to be useless. Thus it not uncommonly happens that all that can be ascertained of the deceased's illness is, that he was seen a given number of hours before death, in apparent or usual health. In fact, in the one case, the practitioner seeks to eliminate from the previously well-ascertained history, from the progress of the symptoms, &c., the conditions which he hopes to discover post mortem; in the other, the judicial inspector aims at the *opposite* result. Furthermore, some of the commonest forms of sudden death leave behind them in the body appearances in many respects similar to those resulting from violence; and hence, in medico-legal inquiries another important aid presents itself, the minute *exterior* inspection of the body, which, for obvious reasons, is little regarded in ordinary autopsies. This department (which the Germans dignify with the special title of *obductio externa*) usually affords most useful information, both positive and negative, and should be conducted with the utmost system, care, and patience. Were more attention bestowed by practitioners on the conditions alluded to, and which include not alone the character of ordinary external injuries, as contusion, ruffling, &c., but also the effects of gravity, putrefaction, gaseous accumulation, and so forth, we should not have to record the lamentable mistakes so constantly committed by witnesses, otherwise



well instructed. Thus Broussais would have escaped the labour of describing an imaginary gastro-enterite, and many Frenchmen's lives might have been saved.

The inquiry next arises, whether in judicial cases a dissection is indispensable to the correct determination of the cause of death. If we judge by the course adopted by the majority of coroners, we should suppose that the medical witness is possessed of an intuitive perception in these matters, and that an interior inspection is rarely necessary; and, accordingly, when a sudden death occurs, without suspicion of violence, it is usually set down to apoplexy, while, if the grounds of such an opinion were sifted, it would appear that it amounted to nothing more than a surmise, which could have been equally well furnished by any unprofessional person. If medico-legal investigations are to be thus conducted, the evidence of medical witnesses in such cases might as well be dispensed with altogether. Still, we are quite willing to admit that instances occur in which a dissection, although always desirable, is not indispensable to the validity of the medical testimony. To this head may, perhaps, be referred cases of severe external injury, such as extensive burns, and grave incised wounds with hemorrhage, &c., in persons proved by trust-worthy witnesses to have been immediately before in good health, and where all the accompanying circumstances negative any other mode of death; or again, some few instances of obvious disease in which the antecedent history was known throughout, and the nature of which had been previously recognised as likely to lead to sudden dissolution. Still, cases of the above kind, it should be distinctly remarked, are but few, inasmuch as the diseases which suddenly compromise life (and these form the chief subject of coroner's inquisitions) are either capable of being prematurely brought to a fatal termination by violence, or leave appearances which are also producible by external injury.

Further, the victim of such disease may have been shortly before death the subject of a criminal attempt, which although perhaps not the cause of the fatal result, yet requires to be substantiated or negatived by the inspection.

A pointed and interesting example of this nature fell under our observation within the last few months. A man, who had laboured under symptoms of heart disease, died in his office and in the presence of others, shortly after returning from the water-closet. From the medical history and the absence of any facts creative of suspicion, it was, perhaps, naturally inferred (but without a post mortem examination) that death had resulted from the cause above stated. A few weeks after-

wards, a fellow-clerk in the office surrendered himself to justice, stating that he had caused the death of deceased by administering to him oxalic acid in a draught of porter, and also, as proved to be the fact, that the remainder of the poison would be discovered in a given place. An exhumation and careful inspection became therefore necessary. A small aneurism of the aorta was found to have burst into the pericardium, and an ulcerated aperture was also discovered in the right ventricle. Now, although these had been evidently the proximate cause of death, it became further necessary, by an examination of the stomach, &c., to determine, in the first place, whether the *alleged attempt* had been made, and, if so, whether it *had precipitated the fatal result*.

As a general rule, also, the examination should not be confined to the cavity obnoxious to suspicion, but include the other two, and, in important cases, the spinal canal also. Many reasons for this might be adduced: we shall content ourselves by observing, that apparently trivial indications in parts not concerned in the cause of death often furnish most important elements for the elucidation of the general facts of the case; that counsel are in the habit of alleging that the true cause of death would have been found in the cavity unexamined; and lastly, that in many of the commonest forms of sudden death, violent or natural, the proximate cause of the event is to be sought, as already stated, not alone in the intrinsic conditions of the individual organ affected, but in the effects produced in other organs physiologically connected with it. The latter circumstance leads us to notice that, according to our observation, due care is rarely taken to determine with precision the relative amount of blood in the different parts of the vascular system, and that in all cases we should recommend the cavities of the heart to be explored *in situ* (the great veins having been previously ligatured near the latter), and a ligature also thrown round the root of the lungs. In cases, also, where the blood remains fluid after death, as in many cases of asphyxia, precautions should be adopted to prevent the emptying the vessels of one cavity by communication with those of another. Thus we have observed in asphyxia by carbonic acid, a quantity of blood to flow from the head, the greater part of which must have been derived from the spine, neck, &c.

From the above considerations, it follows, that few cases occur in which a dissection is not required, and that such examination, to be useful, should be complete. So fully is this doctrine recognised in Germany, which justly boasts of the most able medical jurists, that in many of the states of that



country an examination of the three great cavities is *legally* demanded. The mode in which the post mortem examination is there conducted, and the accompanying formalities, we shall briefly sketch before proceeding to notice Dr. Bock's work. The persons legally required to be present are both medical and legal. Of the former two in number the physicus (*gerichtliche arzt*) or judicial physician, occupies the most important place. He is charged with the supervision of the dissection, which is to be performed by the official surgeon (*gerichtliche wundarzte*, or *kreis-chirurgus*), and to afford such explanations to the legal side as may be required. The surgeon provides the necessary instruments, and prepares the body for examination, &c. The legal persons constitute a sort of *lit de justice* (*judicium pœnale rite constitutum*), and consist of the investigating magistrate, the actuary, and the assessors: the last named formerly to some extent judges, but now merely spectators of the transaction. With such preliminaries, it may be assumed that the inspection, both internal and external, is undertaken as a matter of serious importance, and conducted with rigorous precision. On its completion, it becomes the duty of the physicus to draw out a report of the appearances discovered (*visum-repertum: obductions-bericht*) to which he is to attach his medical judgment on the case (*gutachten-elogiums-judicium physicum*).

On the legal side a report is also furnished (*obductions-protocoll*), which, in addition to the general facts, gives the result of the inspection as dictated by the physicus, and also the judgment of the latter. This legal report having been read to the physicus and surgeon, is then signed by both. Investigations thus conducted confer at once substantial aid to the furtherance of justice, and place the medical referees before the public in a dignified and estimable position.

We must express our deep regret that the mode in which medico-legal investigations in the coroner's court are conducted, with few exceptions, in these countries, stands in painful contrast with that of our Continental neighbours. So much is this the fact, that these inquiries frequently become the subject of animadversion on the part even of unprofessional persons, and, as respects the efficient attainment of their ostensible object, are hollow and delusive. In offering our aspirations for the advent of a better system, we do not mean to advocate the adoption of all the formalities of the French and German methods. Under our own judicial system, much might be done to render our investigations much more precise and effective. The

office of coroner should be placed on a more elevated basis; its emoluments, where necessary, should be increased, and rendered dependent solely on the performance of legitimate duties, and not derived from other engagements which tend to divert the person who fills it, from those which should occupy his sole attention. Coroners should also be released from the fiscal control of grand-juries, and thus deprived of the temptation to employ an inferior class of medical evidence, and to withhold the necessary investigation in many important cases, in deference to the unwisely parsimonious notions of such bodies, constituted, as they too frequently are, of ill-informed and self-important persons.

Much reformation is, however, required in the medical department also. The evidence of medical persons of all grades is at present receivable without the slightest guarantee for the possession of a competent, or, indeed, of any acquaintance with forensic medicine, and hence not only are the interests of society compromised, but the profession is also humiliated by the frequent discomfitures of the uninstructed witness. The bodies which control medical education should see that the student is afforded, as far as possible, the means of becoming acquainted with subjects on which his public judgment will be often required. In the latter respect, the Irish and Scotch Colleges have done their duty. The College of Surgeons of England, on the contrary, leaves it to be plainly inferred that the due performance of public functions by their alumni is of so little importance, that they have delegated the task of testing the acquirements of their members in forensic medicine to another body which, though constituted by charter, cannot be possibly supposed to have any acquaintance with legal medicine. Such a course must surely excite the astonishment and tax the risibility of our brethren abroad.

In addition to a systematic course of instruction in the facts and principles of forensic medicine, we should wish to see established, where possible (as in large cities), some institution where medico-legal dissections should be conducted, and an opportunity thus afforded to the student of becoming practically conversant with his future public duties.

The qualified witness, having made a complete autopsy, should also, we conceive, be required, in addition to his opinion on the facts as taken in evidence by the coroner, to furnish a report of its details after the manner of the *visum repertum* of the Germans. This document would be most useful for reference where an ulterior criminal process is to be expected, or where more than one medical person is engaged in the inquiry;



a digest also of such documents, with the medical opinion in each, periodically published, would, we have no doubt, be both useful and acceptable to the profession.

The work of Dr. Bock, which has led us to the foregoing reflections, presents itself to the notice of the profession in a third and much improved edition, and, as its title implies, treats of the details which demand attention in inspections undertaken for judicial purposes; and, we feel bound to say, contains much to interest and instruct; although, as we think, it is in some particulars unnecessarily prolix. It is the production of one who is evidently practically versed in the subject of which he professes to treat, and who handles the matter with skill and perspicuity.

Having briefly announced the formalities of the medico-legal inspection, and after a few words on judicial exhumations, he proceeds, in the first place, to treat in detail of all the external conditions which are of so much moment to the medical witness, and for the opposite reason neglected by, and often unknown to the mere *pathological examiner*. Of this class are: rigor mortis, cadaveric imbibition, livor, coloration, the changes produced by putrefaction in different media, &c. The appearances which present themselves in the different forms of violent death, as drowning, strangulation, &c., are next discussed, though necessarily in less detail than in professed treatises on legal medicine. A considerable portion of Dr. Bock's work is occupied by a description of the proper mode of opening the different cavities, the anatomical details which should attract attention in the contained parts, and the physical conditions presented by those diseases which are of most importance in medico-legal inquiries. The last chapter considers the mode of conducting the dissection of new-born children in reference to questions of infanticide, a class of inspections which, in regard to the leading details, falls exclusively within the province of the public physician. It strikes us that Dr. Bock might, with advantage, have enlarged this chapter; while those which treat of the different cavities would admit of condensation. As a whole, however, Dr. Bock's book is deserving of attentive perusal by inspectors of all classes, whether pathological or judicial.

*Lectures on the Diseases of Infancy and Childhood.* By CHARLES WEST, M. D., Fellow of the Royal College of Physicians, Physician to the Hospital for Sick Children, Physician-Accoucheur to, and Lecturer on Midwifery at St. Bartholomew's Hospital. Second Edition, enlarged. London: Longmans. 1852. 8vo. pp. 559.

Soon after the publication of the first edition of Dr. West's work, we noticed it<sup>a</sup> with the high commendation which we thought it merited; and we are gratified to find that the favourable opinion we then expressed has been ratified by the profession, as manifested by the early demand for a new edition. The volume is now improved in all respects, the entire having undergone a careful revision by the author, whose more matured experience has enabled him to supply some slight deficiencies which existed in it, and to add "altogether fifty pages" of new matter. It thus "contains the results of 640 observations, and 199 post-mortem examinations, chiefly made among 16,276 children," during the ten years of Dr. West's connexion with the Children's Infirmary in Lambeth. When we add that these results have been deduced by a physician of undoubted talent, of judicious observation, and of sound judgment, we need say no more in recommendation of Dr. West's book to our readers.

<sup>a</sup> New Series, vol. x. p. 442.



## PART III.

### MEDICAL MISCELLANY.

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#### PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

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TWELFTH SESSION.—1851-52.

*Partial Displacement of the Sternal End of each Clavicle.*—Dr. Stokes exhibited a remarkable example of displacement forwards and upwards of the sternal extremity of each clavicle, the result of powerful inspiratory efforts. He remarked, that all were aware of the fact, that in certain cases of intra-thoracic tumours,—for example, aneurism,—pressure carried beyond a certain point was capable of pushing the inner end of the clavicle forwards, and that this displacement was sometimes followed by a temporary alleviation of the more urgent symptoms. It was, however, to be remembered, that the luxation did not altogether depend upon the amount of pressure directed against the bone; for he had seen, in a case of pleuritis, where effusion to a great amount took place rapidly, the lung thrust upwards into the cervical region, forming a tumour which had the appearance of a large goose-egg, without displacement of the end of the clavicle having occurred.

The patient in the present instance was an extremely emaciated, weak, and delicate boy; he was admitted into the Meath Hospital, with ascites to an enormous amount, dependent upon cirrhosis of the liver; it was, as usual, accompanied by enlargement of the spleen, the uniform occurrence of which, in cases of cirrhosis of the liver, had been long since established by Professor R. W. Smith. With a view to afford temporary relief, the operation of paracentesis had been twice performed: after the second operation, the symptoms of peritonitis set in, but the inflammatory action was subdued by treatment; the progress of the ascites was not, however, arrested; on the contrary, the fluid seemed to be poured out more rapidly than before, until at length the greatest possible amount of dyspnoea was established; and after the lapse of a short time, from the pow-

erful action of the sterno-mastoid muscles, the sterno-clavicular articulations became so loose that the end of the bone upon each side could be easily moved in any direction. The muscles of the neck employed in forced respiration, were all acting powerfully. This deplorable state lasted for a few weeks, when death released the patient from his sufferings.

Upon examining, *post mortem*, the state of the articulations, it was found that the ligaments had been stretched to a great degree; the sterno-clavicular ligaments were fully half as long again as natural; the rhomboid ligaments were also elongated. The diaphragm had been pushed up as high as the fourth rib by the effusion in the abdomen; the liver presented the appearances usually noticed in cirrhosis, and the spleen was greatly enlarged. The portal system was distended with blood, as were also the superficial veins of the abdomen. Dr. Stokes also alluded to a case which he had seen, of displacement of the sternal end of the clavicle, consequent upon an enormous and rapid effusion into the right pleura: it remained displaced for four days, when absorption took place quickly, and the articulation became again firm.—*December 20, 1851.*

*Purulent Cysts in the Heart.*—Dr. Mayne presented a specimen of purulent cysts in the heart, taken from the body of a man aged 55, who at the time of his admission into hospital was quite incapable of giving any account of his illness. The surface of his body was everywhere livid, and the face and lower extremities swollen; the external jugular veins were distended, and exhibited a characteristic wavy regurgitation. He had cough, with profuse muco-purulent expectoration and orthopnoea; respiration 30; pulse 120; the skin was covered with cold perspiration. His memory was defective, his sensibility blunted, and there was a strong tendency to somnolence. When asked his name, he replied; but he could not tell the duration of his illness, how it began, nor even his present ailments. The lungs were everywhere resonant upon percussion; but the respiratory murmur was obscure, and accompanied by a large muco-crepitant râle. The region of the heart was somewhat duller than natural, and the impulse of the organ feeble; but the rhythm was natural, and at no period after his admission into the hospital could any *bruit* be heard over the heart or in the course of the great vessels.

Upon the day after his admission it was reported that he had moaned and raved incessantly: when roused, he could answer a question or two coherently, after which he relapsed into a semicomatose state. He died upon the ninth day after his reception into the hospital.

*Autopsy.*—The vessels of the scalp and of the dura mater were greatly congested, and serous effusion had taken place into the sac of the arachnoid and ventricles of the brain, the substance of which was unusually vascular. When the chest was opened, the lungs collapsed but imperfectly, owing to the large quantity of thick mucus



which remained in the tubes and prevented the exit of the air. The lining membrane of the trachea and bronchial tubes was intensely vascular, and the tubes themselves, down to their smallest branches, filled with a thick, adhesive, muco-purulent secretion, similar to that expectorated during life.

The right auricle was filled with a coagulum, which extended also into the right ventricle; it was of a buff colour, totally devoid of red globules, of firm consistence, and adherent to the walls of the cavities by processes which embraced the fleshy columns in the ventricle and the muscoli pectinati in the auricle. The apex of the right ventricle contained a number of purulent cysts, distinct from the fibrinous coagulum, and varying in size from that of an almond to that of a grain of duckshot. They were distinct from one another, and adherent by one side to the lining membrane of the ventricle, being free throughout the remainder of their circumference. They contained a thin purulent fluid, and their parietes seemed to be constituted by a tough fibrinous substance. The abdominal viscera were healthy.

Dr. Mayne, having alluded to the examples of purulent cysts of the heart, which had upon various occasions been exhibited before the Society by Drs. Stokes, O'Ferrall, and Bigger, then noticed briefly the opinions which were entertained as to the nature and origin of these bodies, and was inclined to agree with those who believed that the fibrine or coagulum is first deposited from the blood, and that a process of softening and conversion into pus then takes place in its centre. There was in the case which he had detailed no suppurating surface from which the matter could have been absorbed; neither was there any apparent phlebitis or endocardial inflammation.—*January 10, 1852.*

*Cirrhosis of the Liver; Pulmonary Apoplexy.*—Dr. Gordon laid before the Society the viscera of the chest and abdomen of a man, aged 40, who had led a temperate life, but was obliged to labour very hard, and had been latterly much employed working in the canal and docks, so that he was generally above his knees in water. About the end of last August he was seized with dysentery, for which he was admitted into Sir Patrick Dun's Hospital in the second week in September; he had then severe pains in the abdomen, from which, indeed, he had been suffering long before the dysenteric affection began. He had also ascites, which had come on so gradually, that his attention was first drawn to it by his feeling his clothes too tight for him. He left the hospital at the end of a fortnight, relieved from the dysentery, but without any diminution of the effusion into the abdomen having taken place. He again resumed his occupation, but the ascites increasing, he was admitted into the Whitworth Hospital on the 13th of October, 1851.

The swelling of the abdomen was uniform, and several enlarged and tortuous veins were seen beneath the integuments; there was tenderness on pressure, and he had attacks of diarrhœa alternating with constipation. About ten days after his admission the opera-

tion of paracentesis was performed, after which the state of the liver and spleen was satisfactorily ascertained. The latter organ was greatly enlarged, but the former much diminished in size; its right lobe was scarcely to be felt when the fingers were pressed upwards beneath the cartilages of the ribs; the left lobe, however, was prominent in the epigastrium.

For a considerable time the case presented no feature of peculiar interest; the fluid rapidly accumulated, and paracentesis was several times performed. Against the end of November the scrotum and lower limbs had become anasarcaous to a great degree; he had great thirst, a red, glazed tongue, and frequent vomiting. Occasionally he suffered from severe and burning pain in the stomach, always followed by violent retching, and after some time by slight melænic vomiting; there was a most abundant watery discharge from the skin of the upper half of the body, and the urine was of a deep orange colour.

On the 11th of January, he was suddenly seized with intense dyspnœa and pain in the left side. He became collapsed, and had the appearance of a person labouring under a sudden pneumothorax, but on examining the chest, although the respiratory murmur was absent, the sound on percussion was dull; the dulness and absence of respiration were confined to the upper two-thirds of the left lung. He had now also cough, with bloody expectoration. He died six hours after the commencement of these symptoms.

*Autopsy.*—The right lung, and the inferior portion of the left, were perfectly healthy, but the remainder of the left was gorged with blood, which was partly fluid, and partly coagulated in masses, around which the pulmonary structure was lacerated; externally the lung was of a dark blue colour.

The liver presented the appearances usually observed in the advanced stage of cirrhosis, and the spleen was greatly enlarged, being nearly equal to the liver in size.—*January 17, 1852.*

*Cirrhosis of the Right Lung; Obstruction of the Right Pulmonary Artery.*—Dr. M'Dowell gave the following details of the case from which this specimen had been obtained. The subject of the disease was a man of middle age, who had laboured under symptoms of pulmonary disease for five years and a half before his death. His illness began with a severe attack of pleuritis, with hæmoptysis, cough, and stitch in the right side, and he continued ever since to suffer more or less from pain in the side, accompanied occasionally by hæmoptysis, cough and a certain amount of dyspnœa being always present. Two years ago he became dropsical, and was then admitted into the Whitworth Hospital. At this period the diagnosis of cirrhosis of the lung was made. He was discharged after a few weeks, relieved of his dropsy, and after a lapse of eighteen months was readmitted (July, 1851). He had then cough, with profuse mucopurulent expectoration; his lips were livid, his countenance had a congested appearance, and the jugular veins were distended; he had also dyspnœa, which the slightest exertion increased to a distressing



degree. He was not much emaciated, nor were there any marked symptoms of hectic fever. The right side of the thorax was diminished in size, and much flattened beneath the clavide; it was nearly motionless during inspiration; its upper portion yielded a perfectly clear sound upon percussion, but there was dulness over the lower three-fourths of its extent. Over the left side, and in the cardiac region, the sound was clear. The heart was displaced to the right side, its apex striking the parietes a little below the right nipple. In the displaced heart, a loud systolic bellows murmur was heard over its apex. This murmur did not exist when the man had been last in the hospital. Auscultation gave the following results:—No vesicular murmur was heard in any part of the right lung, except in the infra-clavicular space, while posteriorly, from the spine of the scapula downwards, tubular breathing and bronchophony, with mucous rales, were audible; immediately above and below the spine of the scapula, there was muco-crepitus, amounting to gurgling, with intense pectoriloquy. The left lung was free from disease, but augmented in volume. The diagnostic signs of cirrhosis of the lung in this case, as contra-distinguished from those of phthisis, were the following:—The comparatively slow progress of the disease; its limitation to one side; its greater extent in the lower than in the upper lobe of the lung; the predominance of the signs of solidification over those of softening; the peculiar displacement of the heart; and the absence of hectic fever and of all signs of laryngeal disease. The patient was discharged in August, and again admitted in January, 1852, labouring under general dropsy, intense dyspnoea, and recent bronchitis in the left lung; the apex of the right was now also diseased. He died shortly after admission.

*Autopsy.*—The right lung was not much larger than the closed hand, remarkably dense, and a section of it presented the appearances of a carnified lung; the bronchial tubes, however, were not dilated, in which respect it differed from cirrhosis, as described by Dr. Corrigan. The pleura had attained a thickness of nearly an inch, and the aortal and pulmonary layers were but partially adherent; in the spaces or cavities thus left, upwards of a quart of clear serum was contained. The left lung was augmented in volume, congested, and œdematous; the latter changes, however, were of recent origin. The heart lay behind and to the right of the sternum, with its apex directed to the right side; its left cavities were normal, but those of the right side were enlarged, and their walls unusually thick. The right auriculo-ventricular opening was much dilated. The trunk of the right pulmonary artery was completely filled by a firm, laminated, colourless coagulum of fibrine, which was adherent to the lining membrane of the vessel. The left branch was larger than natural, and unobstructed. In the course of his observations upon the preceding case, Dr. M'Dowell said:—"I connect the hypertrophied condition of the right chambers of the heart with the obstruction of the right pulmonary artery, which led to regurgitation through the right auriculo-ventricular opening into the vena cava, of which there

was evidence during life in the distended state of the jugular veins. To this regurgitation must also be referred the systolic *bruit* heard over the apex of the heart, for all the valves were healthy; during life this murmur had been considered to be indicative of mitral valve disease; its real cause was not suspected, for there does not appear to be any instance recorded of a *bruit* at the apex of the heart depending on regurgitation through the right auriculo-ventricular opening. It is generally admitted that whenever, from temporary causes, the pulmonary circulation is obstructed, the right ventricle is relieved from the pressure of the accumulating blood by regurgitation being allowed to take place, by a separation of the flaps of the tricuspid valve. In this specimen there was a permanent obstruction in one of the great pulmonary trunks, a condition which would render this provision indispensable."

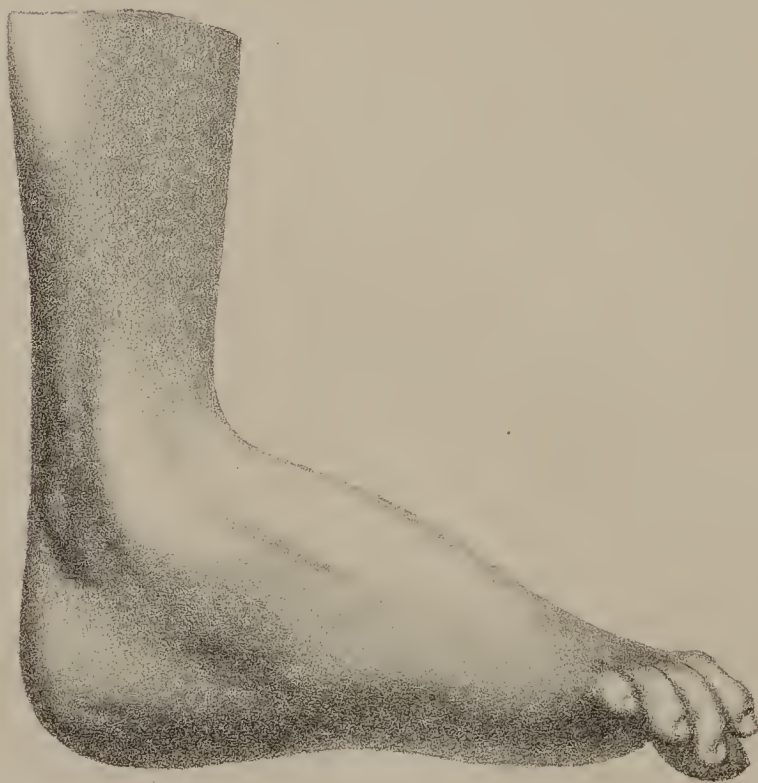
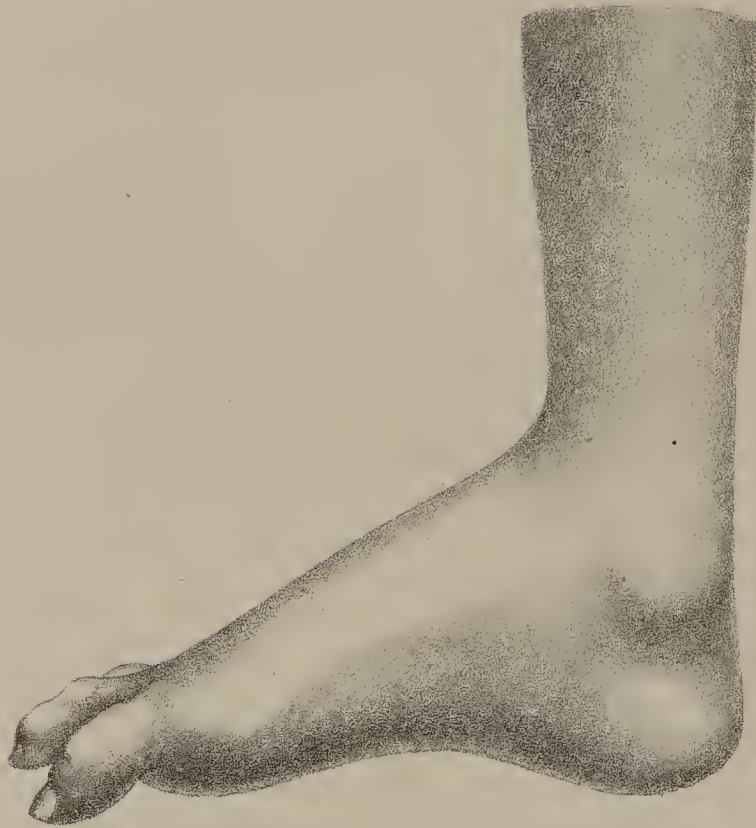
The important physiological fact here alluded to was first briefly noticed by John Hunter; subsequently Mr. Adams, in the Dublin Hospital Reports, directed special attention to it, and showed its connexion with certain pathological conditions of the heart. Of late years, in Guy's Hospital Reports, Mr. King has described the anatomical mechanism by which this regurgitation is permitted by the tricuspid valves, and which he has styled its "safety-valve function."—*January 24, 1852.*

*Morbus Coxæ, with displacement of the Head of the Femur.*—Mr. Hamilton exhibited a specimen of scrofulous disease of the hip-joint, taken from the body of a boy aged 9, who had been admitted into the Richmond Hospital with an immense abscess of the right thigh, extending from the crest of the ilium nearly to the knee, and giving to the limb a conical or castle-top shape. The skin was pale, and several large veins ramified upon it. It was evident that the abscess depended on morbus coxæ, and that the head of the femur had become dislocated upon the dorsum of the ilium. The limb was shortened two inches, the foot inverted, and the toe resting upon the instep of the opposite one. When the abscess was opened, and the sac emptied, the head of the bone could be felt on the dorsum of the ilium, near the sciatic notch. The disease was only of one year's duration, and until lately had not been attended with much pain. The boy died two months after his admission into the hospital, exhausted by hectic fever; for a short time before his death the discharges from the bowels were mixed with blood.

Upon examination after death, the glutæus maximus muscle, where it covered the displaced head of the femur, was of a greenish-black colour, and perforated near the trochanter by two ulcerated openings, each as large as a shilling, and leading to the cavity where the head of the bone lay. The lower part of the glutæus medius was also ulcerated, and through the opening thus formed the head of the femur had passed, so as to come in contact with the deep surface of the glutæus maximus. The cartilage of the head of the bone had been totally destroyed, the cancellated structure exposed, and the head somewhat flattened where it lay upon the ilium; the epi-









physis was perfectly loose. The acetabulum, deprived of its cartilage at its lower part, was separated into its three component parts, and at its fundus there was a perforation which conducted into an abscess in the internal iliac fossa, of considerable size, and which had compressed the iliac vein, giving rise to the œdema of the limb observed during life. The perforated capsular ligament formed a collar round the neck of the femur; its lower portion was nearly half-an-inch in thickness.—*January 31, 1852.*

*Dislocation of the Tibia and Fibula backwards at the Ankle.*—Professor R. W. Smith exhibited a cast and a series of drawings illustrative of this extremely rare form of luxation, and gave the following history of the case:—A man, aged 29, a sailor, was admitted into the Richmond Hospital upon the 13th of February, 1852, for an injury of the right ankle-joint, sustained seven months previously. He stated that he was in the hold of a vessel, arranging the tackle upon a large cask of paint weighing 13 cwt., which it was necessary to raise to the deck; one end of the cask was resting upon a loose mass of flint, employed as ballast, and raised above the other, upon which both hooks of the chain were fixed, the object being to shove the cask round, in order to bring it under the opening of the hatchway. He was standing at this end of the cask, giving it the proper direction with his hands according as it was raised; with his left leg resting upon a small box, and his right foot placed diagonally across two provision casks, which lay side by side in contact with each other; the heel rested upon one, while the anterior part of the foot was supported by the other; the foot was flexed upon the leg, the leg strongly bent upon the thigh, and the thigh flexed upon the pelvis; the limb was in such a position that the knee was advanced several inches beyond the ankle-joint, and placed directly beneath the extremity of the cask, which was now raised about a foot above it. According as the cask approached the vertical direction, the hooks, of course, had a less secure hold; and when it was about eighteen inches above his knee they slipped off entirely, and this enormous weight of 13 cwt. fell upon the lower end of his femur, immediately above the patella, driving the leg downwards and backwards between the two small casks, until the foot was stopped by the floor of the hold of the vessel, the front of the foot coming in contact with a large piece of flint, by which its flexure upon the leg was augmented. He remained in this position for about a minute, while the hooks were being re-adjusted and the cask again raised; the limb was then extricated, and he was brought up and laid upon the deck. He was visited in less than half-an-hour by the surgeon and assistant-surgeon of one of Her Majesty's vessels of war, which was at the time lying in the same harbour. These gentlemen, after a brief consultation, had recourse to a strong and protracted extension of the limb; the patient was then taken ashore, and in the evening he was again visited by the assistant-surgeon, who,

grasping the heel with one hand and the dorsum of the foot with the other, again applied as powerful extension as he was capable of, and then informed the man that everything was now in its place. The patient, however, asserts positively, that upon neither occasion was the appearance of the limb in the slightest degree altered, and that the deformity which the foot now presents has existed unchanged from the moment of the occurrence of the injury. A splint, similar to that employed by Dupuytren for fracture of the fibula, was now placed upon the inner side of the leg, and the foot secured to it in the position of adduction. Upon the following day, however, the swelling was so great, that it was necessary to remove the splint; nor was it again applied for three weeks; it was then put on and worn for two months. Upon the 1st of October, about three months after the occurrence of the accident, the vessel to which the patient belonged, sailed, and arrived at the port of Dublin a few days before the man presented himself at the Richmond Hospital. He was at once received into the hospital, and an accurate examination of the limb having been made, the following results were obtained:—

The muscles of the calf of the leg were wasted, and the limb was from half to three-quarters of an inch shorter than its fellow; the natural prominence of the heel had altogether disappeared, and the curve of the tendo Achillis was effaced, the tendon passing down to its attachment in a straight and vertical direction. The dorsum of the foot in front of the tibia was exactly one inch longer than upon the sound side: the external malleolus was placed seven inches behind the extremity of the fifth toe, and one in front of the tendo Achilles, while upon the opposite foot the former measurement was six inches, and the latter two; it was likewise rather more than half an inch nearer than natural to the outer margin of the sole of the foot.

The lower extremity of the tibia could be felt, and was distinctly visible through the integuments, immediately in front of the tendo Achillis, forming a striking and remarkable prominence at the posterior and inner part of the region of the ankle; it was difficult to ascertain accurately the point of the internal malleolus, as this portion of the bone appeared altered from its natural form; its most inferior part was, however, nearer to the sole of the foot than the inner ankle was upon the sound side.

The anterior part of the superior surface of the astragalus could be felt, but it was impossible to distinguish the entire of its articular surface; it seemed to be in a great measure concealed by the extensor tendons. The antero-posterior arch of the foot was increased, so much so that the plantar region was fully an inch less in extent than upon the opposite side. The foot, which had a tendency to rest principally upon its outer margin, was placed at a right angle with the leg, and could be neither flexed nor extended. It was colder than natural, and the patient (who was unable to throw the weight of his body upon it) complained that it was frequently the seat of



numbness and distressing tingling sensations. The course of the posterior tibial artery at the ankle could not be discovered. Upon the outer side of the leg, immediately in front of the lower third of the fibula, a very prominent tendon was seen passing down towards the fifth metatarsal bone; it may, probably, have been that of the peroneus brevis, displaced from its groove.

That the preceding case is to be looked upon as affording an example of luxation of the tibia and fibula backwards at the ankle must, I imagine, be apparent to all who consider attentively the symptoms which the limb presented, and reflect carefully upon the mode in which the injury was inflicted. The following are the signs which constitute the proofs of the luxation of the tibia:—The shortening of the leg, the double approximation of the lower end of the tibia, to the sole of the foot upon the one part, and to the anterior surface of the tendo Achillis upon the other; the effacing of the curve of that tendon and of the prominence of the heel; the elongation of the anterior part of the dorsum of the foot; the exposure to the touch of the front of the upper surface of the astragalus, and the evidence of pressure upon the posterior tibial artery and nerve, derived from the coldness and numbness of the foot. I shall presently endeavour to show that the preceding symptoms cannot be explained upon the hypothesis of fracture of the tibia close to the joint, with displacement of the upper fragment backwards.

That the injury which the fibula had sustained was a dislocation and not a fracture is apparent from the approximation of the external malleolus to the posterior extremity of the os calcis; for no simple fracture of the fibula could alter the relative normal bearings of its malleolar process to the astragalus and os calcis.

As regards the mode in which the accident happened, no conjunction of circumstances could possibly be imagined more favourable to the production of a dislocation of the leg backwards at the ankle, than that under which the injury occurred in this remarkable case. The thigh was flexed at a right angle with the body, the leg bent upon the thigh, and the foot flexed upon the leg; the foot was in such a position that its anterior part was above the level of the heel, so that the articular pulley of the astragalus was directed from before backwards and downwards; the knee was not only considerably bent, but also advanced far before the ankle-joint. It is obvious that, under these circumstances, the tendency of a force applied to the upper part of the knee would be to drive the tibia downwards, and to cause it to glide from before backwards off the articulating surface of the astragalus. The first effect of the falling of the hogshead upon the knee was to drive the leg down between the two small provision casks upon which the foot had been resting; the luxation, no doubt, did not occur until the foot came in contact with the floor of the hold of the vessel; the limb was then placed between two forces acting in opposite directions—one, the resistance of the floor tending to drive the foot upwards, the effect of the other (the superincumbent weight) being to force the tibia downwards and backwards.

Had the weight fallen from any considerable height, in all probability a compound comminuted fracture would have resulted; but the distance being not more than a foot and a half, the opposite extremity of the hogshead being supported, and the leg yielding to the pressure until the foot came in contact with the floor, the tendency of the force would rather be to *push* the bones from their place. Some idea of the force of the pressure to which the parts were subjected may be formed from the fact, that (there being no wound in the integuments) the blood oozed out in drops from the pores of the skin stretched over the end of the dislocated tibia.

Although the majority of systematic writers upon surgery have described the symptoms of luxation of the tibia backwards at the ankle, Nélaton alone appears to have both seen the injury and to have had an opportunity of investigating, *post mortem*, its anatomical characters; but it is for ever to be regretted that the details of the symptoms, and of the dissection of the limb, are so deficient as to deprive this case of nearly all the importance that would otherwise attach to it. The whole subject of the dislocation in question is thus disposed of:—  
“La luxation du pied en avant se produit par un mécanisme analogue, le pied étant fortement fléchi; nous avons vu une luxation produite d’après ce mécanisme sur une jeune femme qui fut jetée par une fenêtre du quatrième étage, et tomba sur les pieds de manière à toucher le sol par les talons. Dans ces cas, le bord antérieure de la mortaise tibiale avait été séparé, et les aspérités de l’os résultant de la fracture ayant glissé d’avant en arrière sur la poulie de l’astragale, avaient imprimé sur son cartilage des sillons que l’on peut facilement reconnaître à l’autopsie, et qui ne pourraient laisser aucun doute sur la succession des mouvements qui avaient précédé la luxation”<sup>a</sup>.

In the Cyclopædia of Anatomy and Physiology<sup>b</sup>, Mr. Adams has recorded the particulars of a case of injury of the ankle (as far as they could be ascertained) observed by the late Mr. Colles, who had a cast taken of the limb. “In this case,” says Mr. Adams, “the tibia seemed thrown partially backwards from the articular pulley of the astragalus; the fibula was unbroken, and was also carried backwards with the tibia; the foot, measured from the instep upon its dorsum, was longer than that of the opposite side, the heel was shorter and less pointed, the space in front of the tendo Achillis, near to the os calcis, was partially filled up, and a hard swelling occupied the lower and back part of the tibia, which was evidently formed by a quantity of callus, which had cemented together the fragments of a fracture of the lowest part of the tibia; the leg was shorter than the opposite limb.

“It would have been interesting to have learned the precise manner in which this accident had occurred; but as to this, or the immediate symptoms which followed the injury, I could get no satis-

<sup>a</sup> Elémens de Pathologie Chirurgicale, par A. Nélaton, tom. ii. p. 477.

<sup>b</sup> Page 161.



factory information. The man did not apply to Steevens' Hospital until the bones were united in their new and faulty position. Besides the partial dislocation backwards of the tibia, this bone, with the outer malleolus of the fibula, was inclined somewhat outwards, and the man walked lame and most awkwardly on the outer edge of the heel and foot, the inner side of which was somewhat curved inwards."

It is difficult to pronounce with certainty upon the exact nature of the injury in this case, but there are certainly grounds for believing that it was not one of simple luxation of the tibia backwards, but rather of fracture of the lower end of that bone close to the ankle-joint, with displacement of the upper fragment backwards. This view of the case, put forward by Mr. Douglass, of Glasgow, has been adopted by Sir Astley Cooper, as appears from the following quotation from his work on Dislocations and Fractures<sup>a</sup>:

"No instance has been recorded by any individual of a dislocation of the tibia backwards from the astragalus. In the *Cyclopædia of Anatomy*, a case by Mr. Colles, of Dublin, is noticed, which was supposed to be one of dislocation backwards; but I suspect, says Mr. Douglass, it must have been one of fracture close to the ankle-joint, such as I am going to describe." The following is an abstract of the case alluded to:—A man, aged 41, was admitted into the Glasgow Royal Infirmary in July, 1834. Three years before he had fallen from a height of sixty feet, and was struck on the front of the leg, close to the ankle, by a plank which fell with him. A fracture above the articulation took place, and a false joint formed.

On examination, the lower part of the tibia, with the internal malleolus, was felt attached to the astragalus, while the shaft of the tibia was thrown backwards. The leg was three-quarters of an inch shorter than the right, and the foot seemed lengthened in front and shortened behind. When he walked, the lower end of the shaft pressed against the tendo Achillis, making it project backward. The fibula was seen projecting on the outer side in a similar manner. The man insisted upon having the leg amputated.

Upon dissection, the tibia and fibula were found to be fractured transversely immediately above the ankle-joint, which remained perfectly uninjured. The shafts of the bones passed backwards and downwards. The end of the tibia did not rest on the os calcis, but pressed backward and downward against the tendo Achillis.

In the accounts of luxation of the lower extremity of the tibia backwards, given by those authors who have described the accident without having ever seen it, it is stated that the displacement takes place while the foot is extended upon the leg. Baron Boyer, for instance, thus expresses himself when describing the dislocations of the foot: "*La luxation en devant ne peut avoir lieu que dans une extension forcée et subite de la jambe sur le pied, lorsque celui-ci étant engagé et retenu par un obstacle quelconque, on tombe à la ren-*

<sup>a</sup> Edition by Bransby Cooper, p. 259.

verse;" and again he says: "La plus grande extension du pied; mouvement absolument nécessaire pour que la luxation en devant puisse arriver"<sup>a</sup>.

Vidal (De Cassis), in alluding to the displacements in question, remarks: "L'accident qui produirait cette luxation est peu commun; c'est, dit on, une extension violente du pied par l'effet d'une chute du corps en arrière, le pied étant retenu par un obstacle insurmontable"<sup>b</sup>. Marjolin has made a similar statement<sup>c</sup>.

Now, as is well known, extreme extension is the position of the foot during the act of displacement of the tibia forwards; it is, therefore, strange to assert that the same position of the foot exists in cases of luxation of the same bone backwards; but error is very liable to be committed when descriptions are founded upon theory and not upon observation. Boyer, for instance, never saw the dislocation backwards of the lower extremity of the tibia, and only once witnessed its displacement forwards. Nélaton has avoided falling into this mistake.

I may here observe that the nomenclature of these injuries, adopted by the French writers, has always appeared to me to be incorrect, and calculated to produce erroneous ideas as to the mechanism of their production, for the foot (even according to their own statements) is and must be fixed either in forced extension or flexion, before the luxation either forwards or backwards can occur. It is, therefore, manifestly improper to designate them from the part which is immoveable at the time, instead of naming them from that component of the articulation which, in reality, does move from its normal position, namely, the tibia.

It has been also asserted that, in the accident which I have been considering, the astragalus forms a striking prominence upon the dorsum of the foot; it was not so in the instance I have detailed: indeed, it was remarkable how small a portion of its articular surface could be distinguished. We are, I imagine, to refer this, in some measure, to its being concealed by the extensor tendons passing over it abruptly from the front of the leg, and in part to the circumstance of the luxation backwards of the lower end of the tibia being incomplete; for I am inclined to think that, according as examples of the injury in question are multiplied, it will be found that the inferior extremity of the tibia does not entirely abandon the articular pulley of the astragalus, being, in fact, of considerably greater extent from before backwards than the space comprised between the posterior edge of the astragalus and the front of the tendo Achillis; the latter, in the dissected limb lying upon the table, measuring exactly one inch, while the former is one inch and three-quarters. I infer, therefore, that, in a complete luxation of the lower end of the tibia backwards, the tendo Achillis would be pushed from its direction, so as to become convex posteriorly, thus affording a

<sup>a</sup> Tome iv. p. 403.

<sup>b</sup> Tome ii. 364.

<sup>c</sup> Dictionnaire de Médecine, tom. xiii.



means of distinguishing between this and the partial luxation, in which the concavity of the tendon is merely effaced. As yet, however, there are no data upon which to form a positive opinion respecting the anatomical characters of either form of this rare and remarkable displacement.

In his work upon the Principles and Practice of Surgery, lately published<sup>a</sup>, Mr. Pirrie states, that he once had an opportunity of seeing an example of dislocation of the lower end of the tibia backwards in a girl fourteen years of age; the injury occurred two years previous to his seeing it, but the nature of the accident has not been mentioned; no attempt had even been made to reduce the displacement. The foot in front of the malleoli was greatly lengthened, the heel and back of the leg were in a line with one another; the malleoli were unbroken and driven backwards, preserving their natural bearings to each other. Whenever the girl threw the weight of her body upon the foot, its anterior extremity bent upwards, so as to render walking impossible. The tibia seemed to rest upon the os calcis behind the astragalus.

Is it possible that this case could have been one of separation of the lower epiphysis of the tibia, with displacement of the shaft of the bone backwards? The early age of the girl, and the circumstance of the two malleoli preserving their natural relations to one another, favour this idea; but the statement (vague though it certainly is), that these processes were driven backwards, is opposed to it. It is much to be regretted that measurements were not made of both limbs, so as to ascertain exactly in what respects the malleoli upon the injured side had lost their normal bearings to the different parts of the skeleton of the foot.

In the brief description of the case noticed by Nélaton, no mention is made of the condition of the fibula, but in the other instances recorded as luxations of the tibia backwards, it is remarkable that the fibula, unbroken, was also displaced, the reverse of what usually happens in the dislocation of the tibia forwards. I have, however, twice seen the latter injury without fracture of the fibula.

It should not be difficult to distinguish the accident which I have been considering from other injuries occurring in the vicinity of the ankle-joint. The separation of the lower epiphysis of the tibia with displacement of the shaft of the bone backwards is, probably, the accident which would bear the strongest resemblance to it; but in the latter there would be no disturbance of the natural relations of the malleoli either to one another or to the bones of the foot, whereas in the former these processes would, of course, be approximated to the posterior extremity of the os calcis. The circumstance of the malleoli preserving their proper relations to the os calcis would, of itself, indicate the true cause of the elongation of the front of the foot, and of the effacing of the prominence of the heel.—*February 14, 1852.*

<sup>a</sup> Page 337.

## REPORT

ON THE PATHOLOGICAL MUSEUM OF THE BELFAST MEDICAL SOCIETY.

BY A. G. MALCOLM, M. D.,

ONE OF THE VICE-PRESIDENTS OF THE SOCIETY.

*Continued from p. 477, vol. XI.)*

THE present Report comprises twenty-one illustrations.

XXXIX.—PSOAS ABSCESS; CIRRHOSIS OF LIVER.—A lad named Higgins, aged 15, was admitted into the General Hospital, Belfast, in the month of September, with symptoms of fever. One of his brothers had died anasarca, and another, of pulmonary consumption. The symptoms were so slight, that in a few days he was transferred to the convalescent ward, where, after the lapse of a week, anasarca was observed to be commencing. He was mercurialized, and digitalis and acetate of potash administered without effect. The swelling increased, especially in the abdomen, which became so enlarged as to suggest paracentesis. The urine was repeatedly examined, but on no occasion was it albuminous. In this state he died.

The thoracic and abdominal cavities were carefully examined. In the former, the lungs were perfectly healthy, as also were the heart and pericardium; a small quantity of serous fluid occupied the pericardial sac. The liver was lobulated, especially the left lobe, which presented a well-marked specimen of cirrhosis. The spleen was greatly enlarged, but its texture was normal. The kidneys were also over the usual size; and a section of the cortical portion presented the yellow, granular appearance and soft consistence of incipient “granular degeneration.” The peritoneal covering exhibited slight, straggling injection, and a considerable quantity of straw-coloured and slightly turbid fluid occupied the pelvic cavity. On deeper inspection, an abscess was detected occupying the site of the right psoas muscle, burrowing along its entire course, from the diaphragm to the groin, without, however, presenting any prominence in the latter situation. A portion of the liver has been preserved.

In this case the febrile symptoms were in all probability due to the suppuration in the psoas muscle, while the inefficiency of the treatment is readily explained by the chronic and permanently disorganized condition of the liver, not to mention the affection of the other parenchymatous organs.

XL.—SCHIRRUS (?) OF THE PYLORUS; THICKENING AND CONTRACTION OF THE ILEUM AND COLON.—John Hisslop, aged 37, was first seen by the author on the 18th November. He was a man of large frame, but much emaciated, and he dated the origin of his illness some fourteen years previously. The symptoms were always



gastric, chiefly vomiting, pyrosis, acidity, flatulence, and costiveness. He never complained of pain until the past summer, and blood appeared in the matters vomited for the first time in the beginning of October. When pain was first felt it was in the right side and shoulder, afterwards variously over the abdomen. The vomiting came on generally about six hours after taking food. The appetite was indifferent, the mouth felt dry, but there was no thirst; and a peculiar taste, like oatmeal cake, was always experienced before vomiting. He never perspired, and the skin was uniformly dry and scaly. The tongue was furred, and brown in the centre. The matter vomited was of different colours and consistency; when not the ingesta, it was a green fluid, or white and effervescing, or like strong black tea. The urine was of a dark hue and scanty. His pulse was 80, soft and feeble. His nights were rendered miserable by shifting abdominal pains and obstinate flatulence. Dark scybalæ, enveloped in mucus, were frequently removed by enemata, but without such means his bowels remained obstinately obstructed until December 4th, when they were spontaneously freed, and dark, tough, foul evacuations came away, but without any relief; on the contrary, symptoms of impending dissolution now set in. The pulse rose to 120; the features became shrivelled; and pain of the abdomen persistent, which, with constant sickness, and intolerable flatulence, made existence agony itself. In three days after he died, suffering until the last hour.

An examination of the body was made sixteen hours afterwards. The abdomen and pelvic regions were alone inspected. The parietes were without fat; a large volume of gas escaped when dividing the peritoneum, and a brownish turbid fluid, amounting to twenty-four ounces, occupied the cavity. The liver was friable and slightly congested; the spleen was normal. The stomach was contracted. There was distinct thickening of the short curvature in the submucous tissue. The pylorus was also thickened to a great extent, and its caliber much diminished. A section of the mass presented a white fibro-cartilaginous structure, having the appearance of schirrus. The duodenum was normal. A portion of the ileum, within one foot of the cæcum was contracted, and its coats thickened, as at the pylorus. The cæcum and part of the colon were enormously distended with fæces of natural consistence and appearance. The transverse colon at its one end was adherent to the pylorus, and at the other, presented narrowing of the tube and thickening of the coats at the inner margin. The sigmoid flexure and the rectum, though contracted, were filled with scybalæ.

XLI.—This specimen consists of the elementary portions of the occipital bone and atlas in a case of ENCEPHALOCELE of the posterior lobes, which protruded, through the triangular part of the occipital. A cast of the tumour, as it appeared before dissection, is also in the collection.

XLII.—The bones of the foot and leg, in a case of internal VARUS, which were removed at the General Hospital in 1849.

XLIII.—A rare MALFORMATION. The vena azygos may be seen on the *right* side of the aorta, formed from the veins of the lower extremities, while the inferior cava communicates with the veins of the portal system alone.

XLIV.—Scrofulous disease of the TESTIS, removed by excision from a man aged 32; the other testicle was likewise affected.

XLV.—PURPURA; CHRONIC BRONCHITIS AND EMPHYSEMA; ENDOCARDITIS AND DILATATION; BRIGHT'S DISEASE.—Charles Keating, aged 41, a sailor, of irregular habits, was admitted into hospital November 29, 1851. He was subject since a child to cough and dyspnœa. Anasarca appeared last May, and continued with intermissions ever since. Spots of well-marked purpura were observed on the extremities six weeks before admission, since which time epistaxis, hemoptysis, and bloody evacuations have been the only new symptoms. His countenance was pale and bloated, and, though he did not complain of palpitation, or any uneasiness in the cardiac region, the history of the case suggested a careful examination of the heart. Over the region of the valves was heard a distinct double murmur, diminishing in intensity towards the apex. This, with the visible arterial pulsations which were observed in the neck, sufficiently indicated the lesion in the specimen presented. There was no extra cardiac dulness, but the lungs anteriorly were very resonant on percussion, and emitted to the ear bronchial râles, with prolonged expiratory murmur, indicative of emphysema, while posteriorly there was some dulness at the base, with coarse crepitant and bronchial râles, showing the probable existence of congestion, or œdema of the air-cells, and smaller air-tubes. The urine was below the normal specific gravity, and coagulable. He complained much of pains and stiffness in the arms, especially the right, where the purpura was well marked. As the eruption declined, under the treatment employed, the intelligence became affected. Delirium was noted on December 4th with imperfect articulation, and continued with remissions until, the 14th, the day of his death. During this interval the anasarca had disappeared, but the urine remained unchanged.

On examination, after death, of the different organs, the diagnosis was verified in every particular, except as regarded the dilatation of the left ventricle. There were bronchial congestion and abundant œdema, with patches of emphysema on the anterior margins of the lungs. The borders of the aortic semilunars were fringed and studded with a rough coating of lymph, causing obstruction to the flow of the blood, and allowing regurgitation. The mitral was similarly but not so extensively diseased, one section being alone affected. The cavity of the left ventricle was increased to double its natural dimensions, while the walls remained of their normal thickness. The liver, spleen, and intestines were natural. The kidneys were greatly enlarged and softened, and on section presented the usual appearance of the first stage of Bright's disease.

XLVI.—This specimen is the left parietal and left half of the



frontal bone, presenting an example of the influence of TERTIARY SYPHILIS. A considerable portion is destroyed by necrosis.

XLVII.—The skull of a young female who died of SYPHILITIC DISEASE. The palate, and nasal and ethmoid bones are partially destroyed, and the malar and maxillary present specimens of osteitis.

XLVIII.—The femur, tibia, and fibula of one extremity here exhibit well-marked SYPHILITIC EXOSTOSIS.

XLIX.—A portion of the dura mater of a child, aged five years, presenting RUPTURE of the SUPERIOR LONGITUDINAL SINUS, the result of an injury.

L.—This specimen is the cerebellum of a man aged 40 years, who had left HEMIPLEGIA. An apoplectic cell exists on the left side.

LI.—ACUTE PERITONITIS; ULCERATION OF THE RECTUM.—John M'Givorn, aged 55, infirm, was admitted into the surgical wards of the General Hospital, Belfast, on the 27th of May, 1851. He was subject to a purulent discharge from the anus for the last four months, with pain and occasional hemorrhage. A careful examination of the rectum showed no trace of a fistulous opening, as had been suspected before admission. On 5th June, he began to complain of fulness and tenderness of the abdomen, which was tympanitic on percussion. The bowels were confined for two days; the pulse quick and weak; and the tongue covered with a brown fur. The symptoms continued, notwithstanding the usual treatment. Vomiting occurred on the 7th, with exceeding tenderness and swelling of the abdomen, and the pulse at 132. He died on the 9th.

The abdominal and pelvic organs were alone examined. After section of the parietes, the small intestines appeared greatly distended. The peritoneal surface was highly injected, and smeared over with recent lymph effusion. There was some adhesion at different points, and a large quantity of thin yellow exudation. Internally the rectum was found to be diseased. Its entire surface, from the sigmoid flexure to the anus, was thickened and ulcerated, and the free surface of the ulcers covered with lymph, just as is observed in diphtheritic inflammation. No appearance of fistula could be detected. The other organs were natural.

LII.—PHTHISIS, CHRONIC PNEUMONIA, AND PLEURITIS.—David Patterson, aged 35, a labourer, of drinking habits, dark complexion, and of greatly emaciated appearance, was admitted into hospital on the 20th October, 1851, labouring under an illness of one year's duration. Dyspepsia and debility were the first symptoms, which continued with remissions for a period of eight months, when he was seized with cough, at first slight, but soon becoming very harassing. He never spat blood, or complained of lateral pains. The chief symptoms on admission were, short and constant cough, sternal soreness, and lividity of the lips, rigors, and perspiration. The tongue was clean and moist; the pulse small, quick, and feeble; and anorexia and diarrhœa attended. On

examination, the apex of the left lung gave marked evidence of tubercular softening; and at the base the dull percussion, with tubular respiratory murmur, indicated condensation of the pulmonary substance. The right lung presented signs merely of vesicular bronchitis and pulmonary congestion. Treatment was of no avail. Hectic and the diarrhœa carried him off on the 19th of November. The body was greatly emaciated. The lungs, which were the only parts examined, were large, and fully occupied the thoracic spaces, without the collapse usual on raising the sternum. This was owing to the numerous adhesions, which were very strong and old, and observed principally at the apices. There was a very small quantity of liquid effusion. Numerous cavities were seen in the upper lobe of the right lung, and a large one at the apex of the left. Section of either lung presented extensive consolidation (red hepatization), in the midst of which might be observed a white mottling of tubercle, presenting very much the appearance, in colour at least, of a mixture of pepper and salt. This case closely resembled that of Ellen Ferguson (No. XXXII. of these Reports), and presented a good example of a combination which we believe is much more common than generally supposed, and accounts for many anomalous symptoms occurring in protracted phthisis, where the pneumonic complication has not been suspected.

LIII.—LUMBAR ABSCESS; HYPERTROPHY OF LIVER; OLD PLEURITIS.—John M'Kenna, aged 25, a wood-turner, of scrofulous appearance, was admitted into hospital on 29th of April, 1851. He was twenty-one months ill. The first symptom was pain in the right iliac and lumbar region, which continued with frequent intermissions. In the course of a year an abscess had formed, and soon spontaneously opened in the region described, which has been discharging ever since. Three months ago he contracted a cough, which has continued very severe. He has lost flesh much, and his appetite and natural sleep have left him for a considerable time. The examination of the lungs chiefly indicated bronchitis, with some evidence of tubercle in the left apex. The feet and ankles were œdematous, the pulse quick and small; and there were present slight dysenteric symptoms. On the 7th of June erysipelas appeared on the face, attended with great prostration and involuntary evacuations. He expired on the 12th. The body was emaciated to the last degree. Both lungs were adherent by old pleuritic bands, and were with difficulty removed for examination. The left lung presented small masses, grey and gristly, like small portions of boiled tendon. On section, either lung exhibited abundance of white frothy serosity, bursting from the bronchial tubes; the anterior edges of both lungs were emphysematous. The heart was extremely small. The liver was enormously enlarged, very dense, and presented a fawn colour on section. The spleen was normal. The peritoneum over the small intestines was highly injected, and some loose flocculi of imperfect lymph were observed adherent at a few



points. A very few slight adhesions of the peritoneal layers were seen between the liver and parietes. About two quarts of straw-coloured fluid escaped from the peritoneal cavities. The mesenteric glands were enlarged and hardened, but not tubercular. The intestines were distended with gas throughout; their coats extremely attenuated, and the mucous membrane uniformly pale. The kidneys were small, but otherwise normal. No trace of the lumbar abscess was seen in the peritoneal cavity. The gristly substances in the left lung were examined under the microscope, and found to consist of an amorphous granular substance and oil globules. A thin section of the liver, in like manner, presented well-marked congestion of both hepatic and portal systems. This case, during life, was obscure in several points. Phthisis was suspected in the apex of the left lung, from the signs and the general appearance. These are, however, explained by the co-existence of bronchitis and pleuritic thickening on the one hand, and the effect of prolonged suppuration on the other. The sub-acute peritonitis and the hypertrophied liver were not by any means clearly indicated during the progress of the case, as œdema of the ankles is frequently met with in the closing days of life, independently of hepatic disease; and the tympanitic state of the intestines completely prevented a proper examination of the abdominal organs.

LIV.—URINARY CALCULI FROM A FEMALE.—These calculi, two in number, were presented by Surgeon Stewart, of Carrickfergus, who removed them on the 15th May, 1851, by the method practised by Mr. Ferguson, of London<sup>a</sup>. They appear to have been partially connected, and surrounded by filamentous tissue, as the convexity of one corresponded to a concavity on the other. The connexion must have been, however, very slight, as they were removed separately, and the last extracted was imbedded in a cyst-like duplicature of the bladder. On chemical examination they were found to be composed of phosphate and carbonate of lime. They weighed 160 grains and 100 grains respectively. Mr. Stewart forwarded, along with the specimen, the following account of the case, and especially of the manner of operating:

“ Mrs. G., aged 50 years, the mother of several children, had been afflicted with symptoms indicating the presence of stone in the bladder for nearly two years. Having passed a silver catheter, I felt and heard it strike against a stone. I explained to her that an operation would be required for its removal; to which she assented. The operation was performed by me, assisted by my son, on 15th May, 1851. The method which I adopted consisted in dividing the external orifice of the urethra, for about half-an-inch, with a probe-pointed bistoury passed along a grooved director (the patient having been previously placed on a table, and secured in the usual way for lithotomy). Then, having introduced the point of my left fore-

<sup>a</sup> Lancet, 12th September, 1846.

finger into the wound, I gradually insinuated it, with a semi-rotatory motion, into the bladder; this was easily affected, the posterior part of the passage being considerably dilated, whilst the external orifice was in the natural state, and possessed considerable rigidity. Having touched the stone with the point of my finger, I slid along it a pair of nasal polypus forceps (the blades of which being six inches long, and their junction three inches from the points, I did not require to separate the handles more than the diameter of the stone), and then, withdrawing my finger, the stone was seized and extracted with a gentle rotatory motion. Having passed my finger again to ascertain if there were any more calculi, I detected another inclosed in a cyst, and which required to be detached from it with the finger (using at the same time firm pressure with the hand of my assistant above the pubis) before it could be seized with the forceps and extracted. It was about the size of a nutmeg. My patient recovered completely the retentive power of the bladder, and is now in good health. This plan of operating is the same in principle as that published by Sir Philip Crampton in the Dublin Quarterly Journal for February, 1847, p. 2, but it is effected by a more simple apparatus, and, in my opinion, causes less pain to the patient; as, with the left forefinger, used as a dilator, the surgeon is better able to judge of the degree of resistance the urethra makes to its passage, than by any other dilating material whatever, and can more or less gradually insinuate it into the bladder, according to the degree of resistance offered."

LV.—**ENORMOUS FIBROCYSTIC TUMOUR OF THE NECK.**—This tumour was situated on the left side, and measured about twenty inches in its extreme length, extending from behind the left ear, in an oblique direction to the lower part and opposite side of the trachia. It sank deeply into the soft parts behind the left ramus of the jaw, so as nearly to obliterate the passage of the fauces, pressing upon the œsophagus and larynx. Its extreme circumferential breadth measured fifteen inches, and its weight was nearly five pounds. Upon section the mass presented the usual fibrous structure, and in the centre, a distinct cyst, half filled with a cheesy matter, was observed, and at a point nearer the surface, a congeries of loaded vessels gave this part a melanotic appearance. The specimen was presented by Dr. James Moore, one of the surgeons of the General Hospital.

The subject of the case was a man, aged 28, a native of Lisburn. At the period of attendance his appearance was somewhat emaciated, his countenance pale, with an anxious and care-worn expression. He stated that the tumour originated fourteen years previously, at first not larger than a pea, and situated beneath the lower jaw, perfectly moveable under the skin, and at the time attracting but little attention. During the first two years it increased but little, but afterwards it had progressively and regularly enlarged. The surface of the tumour presented no unusual appearance. The only complication elicited from the history was, that he had been latterly



complaining of chronic dyspepsia. He was submitted to consultation on his admission to the Belfast General Hospital. Considering the great size (latterly rapidly increasing and threatening asphyxia), its probably non-malignant nature, and its relative position not involving the main vessels,—and further, as he strongly expressed a wish for the operation, it was deemed expedient to remove the mass completely, and thus give the patient the only chance of prolonged existence. The steps of the operation were briefly as follows:—An incision was made over the centre of the tumour, in the direction of its long diameter; the skin on one side was dissected back, and the tumour gradually and cautiously turned out of its berth, in doing which, each incision was made upon the tumour itself. Some difficulty was felt in removing one of its lobes, where it had forced itself deeply into the soft parts, behind the ramus of the jaw. Not more than four ounces of blood were lost during the entire operation, which lasted during three-quarters of an hour, though one inch in length of the carotid artery, immediately below the bifurcation, was exposed, and the occipital artery divided. Both the carotid and the jugular vein remained completely unconnected with the tumour, thus corroborative of the diagnosis. The patient bore the operation with the utmost fortitude. The immense gaping wound was filled with lint, and a light compress and bandage applied. An hour after the operation the pulse was only 85. Unfortunately, however, secondary hemorrhage occurred, in about four hours afterwards, to the extent of half-a-pint, which was found to proceed from a wounded branch of the occipital. This was, of course, immediately stopped by securing the vessel. The pulse and respiration now continued to improve, and all seemed going on well, until the following morning, when diarrhœa and vomiting supervened, and next day he sank.

LVI.—TUBERCLES IN THE BRAIN.—This specimen consists of the portions of the brain of a child, aged three years, presenting small masses of tubercle, four in number in the cerebrum, and one in the cerebellum. During the last few months of its life, repeated convulsions were the chief symptom. Tubercular matter was also observed in the lungs.

LVII.—ULCERATION OF THE DURA MATER.—This condition originated from injury which occurred during the operation of trepanning by an hospital surgeon; from *Lizars' Collection*.

LVIII.—CALCAREOUS DEPOSIT IN THE ARCH OF THE AORTA.

LIX.—THE TUNICA VAGINALIS IN HYDROCELE.

*Case of Peritonitis following the Rupture of an Ovarian Tumour in a Female two months pregnant; Recovery.* By JOLLIFFE TUFNELL, F.R.C. S.I., M. R. I. A., Surgeon to the City of Dublin Hospital, &c. &c.

HAVING recently brought under the notice of the profession<sup>a</sup> a case of peritonitis succeeding the swallowing of a small portion of a turkey's feather, which, lodging in a fold of the large intestine, occasioned death by perforation of the bowel, illustrated thereby the trifling cause by which a fatal termination may sometimes be produced, I purpose now to detail the particulars of a not less interesting example, where peritonitis of the most formidable character followed the rupture of the attachments of an ovarian tumour in a pregnant female, where all the symptoms of intercepted intestine existed for four days, where extreme salivation followed the employment of mercury, where the tumour itself enlarged rapidly after the accident, and yet where not only did recovery take place, but utero-gestation was not interfered with, the patient going her full time, and being delivered of a full-grown living child. The two cases exhibit thus a striking contrast between the retentive powers of life in different individuals under circumstances of a somewhat similar nature.

Mary D., a finely-made, healthy-looking woman, menstruated for the first time at 16. She married in the succeeding year, and had her first child within ten months. She was next confined at 21, and completed her third pregnancy at 23. This was a twin birth, after a lingering labour of two days, and was followed by post-parturient flooding. The hemorrhage seems to have been excessive, and to have depended upon inertia of the womb; for her account is, "that the doctor, on reaching her, took the first thing at hand, which happened to be a thick square book, and bound it very forcibly on her belly, remaining for many hours by her side, giving her brandy and wine."

She suffered much upon this occasion, and was greatly reduced by the loss of blood, yet, nevertheless, suckled both children herself. Her constitution was much weakened by this effort, coupled with the preceding loss of blood, and, consequently, the next conception proved abortive, as she miscarried at about three months. Her next child was born when she was twenty-five, the sixth at twenty-seven, and the seventh at twenty-nine years of age.

About three months after the last birth, she for the first time felt uneasiness in the right iliac fossa. It was not constant, but came on whenever she took much exercise, or on lifting any weight. After persisting for a longer period than usual, she one day examined the part, and then for the first time detected a tumour the size of an egg. It was oval, even, and hard, "*feeling like the gristle of*

<sup>a</sup> Read before the Surgical Society of Ireland, February 7, 1852, reported in the Dublin Medical Press, February 18, 1852.



*meat*," moved freely from side to side in the abdomen (as she lay on her back), but fell forwards when she stood upright. This tumour increased very slowly but progressively in size, until it assumed the dimensions and somewhat the shape of a large breakfast-cup. Before the menstrual period it always grew fuller and more heavy, remained stationary during the flux, and then receded again. As it permanently dilated so did the uneasiness increase, until at length she could hardly take an ordinary walk, or carry a light basket in her hand, without experiencing great pain in her hip, round the crest of the ilium, and down the thigh. The catamenia were regular, and the functions of the rectum and bladder naturally discharged.

Such was her previous history up to the night of the 18th of October, 1850. She suffered much pain the preceding evening from having taken more than usual exercise during the day, and consequently retired early to bed. In the night, or rather towards morning, she was awakened by the crying of her child, who was lying on her right side in the bed. Being upon her back at the time, she endeavoured to lift it across from the right to the left side, and, in making considerable muscular effort for this purpose, "*felt the tumour tear, rise up out of the flank, and twist itself over*. Immediately the most excruciating pain followed, shooting from the groin to the back, of a sharp, boring character, like a long-continued labour pain.

Faintness and collapse supervened, and for a considerable period she remained bordering on this state. After rallying, the agony returned, and she was in the following condition when I was called to her about 8, A. M.:

Lying on her back, with the knees drawn up, crying in a piteous manner, she was evidently in the greatest possible distress. The hands were clasped over the abdomen, and she was afraid to move, breathe, or even stir. I had much difficulty in making an examination of the belly, but I did so sufficiently to enable me to detect a large globular body, of a firm, even consistence, lying on the right side of the abdomen, midway between the crest of the ilium and umbilicus. That this tumour itself, or its attachment, had recently ruptured there was no doubt, and as such I looked forward to the issue of fatal peritonitis.

I prescribed a full dose of laudanum, viz. sixty drops, at once, and ordered hot fomentations to the belly, to be followed by laudanum sprinkled freely over the surface, and a lavement of tepid water to be injected.

At, 3, P. M., I visited her again. The opium seemed to have had no effect. She was complaining greatly of pain and tightness across the abdomen. In addition to this she was vomiting greenish bile, and her countenance was indicative of, if possible, increased distress. The pulse was very frequent and small. I now bled her to sixteen ounces, and ordered leeches to be applied to the abdomen, but, before doing so, I made a long-continued effort to restore the tumour to its former position by manipulation, and turning her upon her side. In

this, however, I altogether failed, the tumour remaining steadily lodged upon the small intestines.

I prescribed two grains of calomel, with half-a-grain of opium, to be administered every second hour; sherry-whey and Wenham Lake ice to be given as she desired, with small quantities of cold chicken tea.

The next day she had further declined. The vomiting had become almost incessant, the attempts to discharge the stomach being now repeated so frequently, that she was lying with her head over a small basin kept ready to receive the contents. No stool had come away after the injection, nor had the bowels acted. The tenderness of the abdomen was so great that she would not allow the slightest examination to be made, or any further effort to dislodge the tumour to be attempted. No water had been passed since the accident, the catheter, therefore, was introduced, and some high-coloured urine drawn off. The same treatment was continued, with the addition of half-a-drachm of mercurial ointment being well rubbed into the inside of the thighs every eight hours.

October 21st (third day).—Peritonitis had become determined; the belly distended and acutely painful; the breathing rapid and thoracic; the pulse hard, small, and very frequent; the vomiting persistent, and no evacuation from the bowels. Sinapisms were applied to the epigastrium, mercury and opiates continued, wine very freely given, and beef-tea and chicken broth as desired. The catheter was also regularly employed. The mouth had already become sore.

October 22nd (fourth day). The patient was now in a most critical condition; the vomiting incessant; the belly tympanitic; the head sunken; and the vital powers beginning to decline. Salivation had fully ensued, yet no stool had passed from the bowels, and eighty hours had elapsed since the commencement of the attack.

Under these circumstances I deemed it desirable to summon a consultation to consider the propriety of resorting to operative interference. In this I was kindly assisted by my colleague, Dr. Williams, by Dr. Churchill, and Dr. Carte. Upon our meeting and examining the case, a new feature, however, presented itself, the patient suggesting the possibility of her being pregnant, as her last change had not made its appearance, and the general regularity of its occurrence made her think she might be so. This assertion necessarily decided the impossibility of interference, and it was considered that nothing more could be done than to continue the former treatment, viz., the use of opium in full doses, and to support her with beef-tea and wine; the effects of mercury having been already fully produced. This plan was accordingly followed out; the wine was liberally poured in, and her strength thus kept up. In addition to this, I should mention that the surface of the abdomen had been painted with liquid blister, and raw cotton applied over all.

October 23rd (fifth day). Early this morning a discharge of green, slimy, mercurial evacuation began to pass from the bowels.



As the day advanced, this increased in quantity, and for several hours it continued to run away without effort or pain. The vomiting (on its supervention) materially declined, and the countenance at once became less indicative of distress. The same treatment was steadily pursued.

October 26th (eighth day). The improvement since the last report was considerable; the vomiting had altogether subsided, and the peritonitis was declining, but the effects of the mercury were now causing much local annoyance. The lower lip was ulcerated throughout, and the inside of each cheek in a state of superficial slough. Clove gargle was used for the salivation, and afforded marked and immediate relief. The only other addition to the previous treatment was the substitution of port for sherry wine.

October 30th (twelfth day). Much improvement had taken place in the general condition of the patient. A stool of healthy fecal character was passed this day, and for the first time since her illness she made water without the aid of an instrument. A flannel binder, in the form of an 18-tailed bandage, was now applied to the abdomen, and tightened to a degree that she could conveniently bear. This afforded much comfort and support, and four hours after being put on, she turned over upon the right side.

November 1st. The slight change of position upon the 30th was productive of much ill effect. She had return of pain in the abdomen, with sudden starting soreness in the tumour, darting from the crest of the ilium through the respiratory muscles of the right side; stiffness of the leg also followed towards evening, extending from the knee to the foot.

Upon examination of the extremity, it did not appear œdematous or swollen, but the superficial veins were prominently distended, whilst those of the opposite limb were not even visible to the eye. Repeated fomentations were ordered to the leg, and a poultice of linseed-meal, made with a drachm of the extract of belladonna dissolved in a pint of boiling water, directed to be applied over the whole surface of the abdomen, which was still raw from the effects of the blister, the cutis having ulcerated throughout.

November 2nd. She had experienced relief from the belladonna, but had a rigor in the night. The veins of the leg and thigh, in addition to being prominent, were tender, and the limb was œdematous throughout. The tumour, too, was considerably enlarged. The opiates, which had been diminished in quantity, were now again resumed as before, viz., half-a-grain of solid opium every third hours, and a dose of thirty minims of the tincture given at night. Wine, beef-tea, and jelly, ordered to be taken as desired.

November 3rd. The phlebitic tenderness and fulness of the veins had decreased, but the swelling of the leg remained the same, and there was much pain felt in the course of the peroneal nerve, but altogether, however, the patient was better, the voice stronger, and there was more general power; the sloughs had separated from the cheeks, and left a healthy-looking surface underneath.

November 5th. She had another relapse. Being better the preceding day, she was tempted to try and sit up in the bed. This was followed by vomiting of yellow bile and a rigor, which lasted for four hours. She had some degree of strangury also. The soreness and inward pain of the tumour complained of on the former occasion had returned, also, in an increased degree, and some of the darting pains through it were so severe as to make her rise up involuntarily in the bed. A careful examination of the tumour was now made, but no sign of suppuration could be detected either in it or elsewhere. The parietes of the abdomen were not inflamed, and the integuments glided freely over the tumour. There was no increase in the subacute phlebitis of the leg, or any visible cause for this constitutional disturbance. The patient's aspect was more anxious, the appetite had declined, and the night had been passed in restlessness and pain. A very full opiate was prescribed to be taken in the evening, the wine to be given more freely through the day, and a grain of sulphate of quina every fourth hour.

November 8th. She was doing favourably. The general soreness of the tumour continued, but the darting pain was gone. The pulse was steadier and had more power.

November 17th. Since the last report there had been a gradual and steady amendment of all the symptoms. The peritonitis and phlebitis both declined, whilst the vital powers correspondingly increased. The tumour now gave very little uneasiness. The surface of the belly was still discharging pus copiously from the blistered parts. This appeared to afford permanent and marked relief. The secretions and excretions were natural.

It would be tedious to follow up this case further through the stage of convalescence; I shall, therefore, merely state that recovery was gradual and unchecked. She remained upon her back in bed until early in February, when she cautiously got up. In March she took exercise about the room, and in April went out of doors. During all this time her pregnancy went steadily on, but the tumour also increased considerably in size, and became elastic to the touch, and when last examined (prior to the distention of the abdomen from parturition being so great as to prevent its outline from being felt) it appeared to be about the magnitude of an ordinary child's head, and to occupy nearly the same situation as before, inclining, however, rather more to the right side.

She gradually gained strength, and prepared for her confinement, which she expected to take place in June. I called upon Dr. Shekleton, of the Rotundo Hospital, and mentioned the case to him, requesting the favour of an admission for her into the Lying-in Institution. This he most kindly afforded, and I left her under the assurance that the labour would be conducted there. On the night of the 17th June she felt poorly, but did not make any complaint, and retired to bed. At about 2 o'clock in the morning labour-pain came on. She awoke her husband, who went for a car, and who returned in less than three-quarters of an hour, but found the child



already born in the bed. The funis was round the neck, and the infant livid from constriction and want of air. It was a full-grown male. For some time after release it remained insensible, but subsequently revived, and cried loudly and well. Towards the afternoon it began, however, to decline again, refused the breast, and grew faint, and died early the following day.

As regards the patient herself, she recovered speedily and well, and left her bed the eleventh day. The lochia, having remained for the customary period, gradually declined, and were succeeded by healthy menstruation, which continued up to the 25th of November last. Since then no change has come on, and there is reason to conclude that she is pregnant again.

Now, as regards the tumour, the most interesting fact is to be observed, that it has receded altogether. From the size of a cocoa-nut, or child's head, it has dwindled down to that of a kidney or small egg. From an elastic, encysted feeling body it has collapsed into a firm fibrous or solid lump, situated in the natural position in the course of the broad ligament, deep in the cavity of the pelvis. It exercises no influence upon the patient's health, which is hale and robust; gives no pain except at change of weather, or after exercise of more than a moderate kind. When turning from side to side in bed she feels some uneasiness or tightness in her hip. At the monthly period it becomes slightly enlarged, but after the catamenia have disappeared, declines again.

The history of this case I believe to be the following:—In the muscular effort made by the patient on the 18th of October, when lying on her back, she ruptured the attachment which had formed between the body of the tumour and the peritoneal lining of the pelvis; possibly, in addition, some cell or cyst of the tumour might have also given way, but whether this was so or not, the body of the tumour twisted round upon the small intestine, and, by its constriction of some portion of the gut, occasioned the access of those symptoms which, though common to peritonitis, are so much more marked in strangulated bowel, and which were so strongly persistent in this case. The combined action of the mercury and blistering (both carried to what might, perhaps, appear to be an excess) were, together with the opium, the means of meeting the peritonitis, but the purgative action of the mercury, by its drain on the intestines, was mainly the cause of successful issue, by unravelling the intestine, through the medium of the exhalent diarrhœa, which, filling the gut with fluid matter, forced under peristaltic action a passage through the bowel. Had not wine been liberally given from the first, the strength of the patient could never have borne up against the fearful odds with which she had to contend. The tumour of the ovary, under the stimulus of the attack, developed itself in the usual encysted form, but the pressure from uterine enlargement upon recently generated cysts was sufficient to induce absorption of them and their contents, the only structure capable of resisting the absorption process being the hard, fibrous stroma of the original

tumour, and which still continues to exist. From the relapses which followed upon both occasions of altering position, the conclusion must be drawn, that the utmost attention should be paid in any similar case to keeping the patient recumbent on her back for some considerable time after the more acute and urgent symptoms have declined.

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*Case of Encysted Tumour of the left Labium Externum, removed by Operation.* By CHRISTOPHER S. BLACK, M. D., L. R. C. S. I., one of the Medical Officers of the Belfast Dispensary.

ANNE BERRY, aged 60, a widow and mother of five children, states that, twenty-seven years ago she was thrown with violence, her "private parts" coming into contact with a stool, bruising severely the left labium externum. In consequence of the pain and tumefaction which resulted, she applied to a medical man, who advised poulticing, &c., which alleviated the pain and inflammation; but a small tumour about the size of a hazel nut remained. She suffered little uneasiness from this enlargement for a series of years, except during parturition, but within the last twelve months the tumour has increased rapidly without any apparent cause. When requested to visit her on the 1st March, 1852, I found the patient confined to bed, her countenance anxious, but by no means indicative of any organic disease of a malignant character. On examination I discovered a large, heavy, pendulous tumour, pyriform in shape, depending from the left labium, about five inches and a half long, by three and a half in diameter, elastic, not tender when manipulated, and slightly ulcerated at the base from friction against her dress. It was opaque, the surface smooth, with large veins, and the skin moving freely over it. Considering the growth to be a specimen of encysted tumour, I decided on removing it, as it interfered with the woman's power of locomotion, and was causing a great deal of suffering by its weight. On March 3rd, assisted by my colleagues, Surgeon Smith and Dr. Ross, I proceeded to operate. Having placed the patient under the influence of chloroform, and premised two "exploratory punctures," which showed the contents to consist of a viscid atheromatous matter, I made two elliptical incisions around the neck of the cyst, and endeavoured to dissect it carefully out, but whilst doing so the sac was slightly wounded, and immediately there gushed out about a pint of a fluid of an atheromatous character, dark-yellow in colour, and of the consistence of honey; this circumstance in some degree embarrassed the progress of the operation. With a few rapid strokes of the scalpel, however, I removed the mass without wounding any vessel of consequence. When the wound was examined, a small portion of the cyst was found to be prolonged between the mucous membrane of the vagina and the "os pubis" to the extent of about an inch and a half. We decided not to remove this part of the sac, as, in the event of a troublesome hemorrhage ensuing, we should have experienced much difficulty in the application of liga-



tures at such a depth, and pressure would have been inconvenient: one small artery only required to be secured. The wound was left open for a few hours and cold water dressing applied. The patient having been removed to bed, a stimulant antispasmodic draught was exhibited, as she became nervous and agitated when the effects of the chloroform began to disappear. Three hours after the operation I visited her; she was then much calmed by the draught; there was no hemorrhage, and I brought the lips of the incision together by a few points of "interrupted" suture, and in doing so included both edges of the remaining portion of the cyst, in the hope that adhesive inflammation might be set up between its surfaces, and obliteration of its secreting cavity might ensue; cold water dressing was re-applied, and an anodyne draught was ordered to be taken at bed-time. October 4th.—At my visit this morning I found the case doing well. She had some rest, and the edges of the wound were clean and healthy in appearance. Pulse weak, 80; tongue slightly loaded; still nervous and agitated; the antispasmodic draughts to be repeated. 5th.—Simple dressing to be applied; pulse as at last report; bowels confined; to have an ounce of castor-oil. 7th.—The incision much swollen and painful; edges rather foul and glazed; the simple dressing to be omitted, and bread and milk poultices to be applied; bowels open; tongue clean; pulse 80. 8th.—I removed the sutures. She was relieved by the poulticing, and the edges of the wound looked much cleaner and healthier. She was ordered two cathartic pills and a tonic mixture containing quina and dilute sulphuric acid. 10th.—The patient feels much better to-day. I removed the ligature; the edges of the incision clean, adhering, and granulating kindly; the cold infusion and tincture of bark were prescribed in a mixture. She was directed to have the wound dressed with spermaceti ointment, and to be allowed to sit up a few hours each day. From this time the case went on favourably, nothing worthy of note occurring; the wound was almost completely cicatrized on the twentieth day, when I ceased my attendance.

*Observations.*—The great length of time which elapsed from the receipt of the injury to the full development of the tumour is, I think, remarkable in this case; it is probable that some of the sebaceous follicles, which abound in this region, had been originally ruptured, and a small cyst then formed, which, having remained in abeyance for many years, from some unknown cause suddenly took on a secreting action when the woman had attained an advanced period of life, and rapidly acquired the dimensions above given. Tumours in this situation are comparatively rare. I can find no record of any of an *atheromatous* character having been described. Liston, in the 77th number of the *Edinburgh Medical Journal*, gives an account of a tumour removed from the left labium externum of a female about thirty years of age, which is illustrated by a drawing bearing a considerable resemblance to the tumour which I removed. In Liston's case, the growth was of a totally different

nature, but nearly agreed in its pelvic attachments. He says: "the removal was attended with difficulty, as the cyst extended along the vagina, a distance into the pelvis, and permanent contraction of the 'sphincter vaginæ' remained in consequence of its removal. The tumour weighed 10 lbs. and was of a very dense character, similar to the mammary gland." By not removing the entire cyst, the risk of causing contraction of the sphincter muscle was, in the case I have described, avoided. The cyst on examination seems now to be entirely obliterated, and the parts are nearly normal in appearance. My friend, Dr. Malcolm, kindly made a microscopic examination of the contents of the tumour. His note I append:—"Plates of cholesterine numerous; oil globules; granular matter as groundwork, with divisions: epithelium?"

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*Case of Ramollissement of the Brain.* By J. H. HAIRE, Surgeon, R.N.

A SURGEON in the service of the Peninsular and Oriental Steam Company, aged 35, of a bilious temperament and temperate habits, on the evening of our departure from Hong Kong, on the 23rd of June, 1851, complained of slight headach, with tendency to nausea; his tongue was furred, and his bowels confined; he attributed his indisposition to having drank beer during the previous ten days, whilst living on shore, being unaccustomed to do so when at sea, as he was liable to attacks of dyspepsia. When on shore he had also been a little more exposed to the sun than usual, but he did not consider this an exciting cause. Before he retired to bed, he took some calomel and colocynth, and on the following morning a large dose of senna mixture. At noon, seeing him much depressed, and anxious in manner, I suggested his using an enema, which was shortly after ejected without producing any effect; he then had a drop of croton oil with cathartic extract, which also proved ineffectual until it was repeated. Three hours subsequently, towards evening, the bowels were freely opened, there being copious bilious evacuations; after which he expressed himself as being much relieved, and his restlessness of manner seemed to subside for the time. On visiting him about 10, P.M., he evinced the same degree of nervousness and restlessness as before the bowels had been opened: in fact, he seemed as if labouring under mild delirium tremens, saying that he did not wish to be alone. His native servant remained with him during the night at my suggestion, and he took a pill containing a grain of morphia and three-fourths of a grain of tartar emetic, to be repeated in three hours if he should not sleep.

25th. He took the second pill, but did not sleep; pulse normal, rather feeble; tongue moist and tremulous: ordered to continue the pill every third hour. At noon he dressed himself, read for some time, and seemed more composed: he had some chicken broth and a little sherry. At night the morphia was increased to one and a half grain in each pill, with the same quantity of tartar emetic as before.



26th. He took three pills during the night, yet still complained of want of sleep. Supposing the morphia might be inert from the effects of climate, it was changed for opium, four grains of which, with three-fourths of a grain of tartar emetic, being exhibited during the day, every third hour: he has been sitting up all the afternoon, and read a little; he also sent for his desk, and wrote some memoranda. In the evening he seemed much as usual, but complained that he felt a sensation at either side of the head, as if fluid was rolling about. On inquiry, he said that he did not feel very much headach, although he was bathing his temples with Eau de Cologne; the weather being oppressive might be supposed to have induced him to do so, yet at my earnest request he allowed a blister to be applied to the nape of the neck; the pills were omitted, and he was ordered five grains of calomel and four grains of opium in two pills every third hour.

27th. Passed a sleepless night; as the blisters did not rise, the acetum cantharidis was applied, but the vesication was only partial; he was directed to continue the calomel and opium during the day. Whilst lying in an easy chair this afternoon he slept for five hours and a half.

28th. But little sleep during the night; had the calomel and opium as heretofore; says he feels better, and sat up all the afternoon outside his cabin; seems disinclined to be alone; his temper is irritable, but he regrets any ebullitions of passion when they occur.

29th. At 5, A.M., I was called, when I found him sinking rapidly: pulse scarcely perceptible, skin bathed in a clammy perspiration; stimulants were exhibited without effect, and at 7.30 o'clock he ceased to exist.

On examining the brain, four hours after death, the dura-mater was found to be very much thickened, the arachnoid and pia-mater were partially connected by patches of lymph, the arachnoid presenting an opaque appearance; a considerable quantity of serum was effused beneath it, the surface being covered with small globules of a purulent appearance; on the ventricles being laid open, they were also found filled with serum; the surface of the brain was covered with small globules of pus, its colour was unaltered, but it was soft throughout, almost adhering to the fingers on the slightest pressure. Being an invalid at the time, I was unable to examine the remaining viscera.

Being unacquainted with the habits of this gentleman when I first saw him, I was disposed to look on his symptoms as those of delirium tremens, taking into account his living more freely than usual for the previous ten days. I was subsequently informed by the Captain of the steamer that he had occasionally seen him much depressed, and that he would confine himself to his cabin for a day or two. He had been three years in India, and lived moderately. On arrival in England, I was told by his brother that he had fever about eight years previously, whilst pursuing his studies in London, and that the head was very much affected at the time. It is also worthy

of remark, that on the 26th, when he wrote some memoranda as to the disposal of his effects, in them was found this ominous sentence —“ A voice calls me.” We were unaware of the purport of his writing on this day; the memoranda were found in his desk after his decease. Strange to say, throughout his illness the pupils preserved their normal condition; there was also a total absence of paralysis.

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*On Rupture of the Funis, in its relation to Legal Medicine.* By Dr. J. SPAETH, Assistant to the Imperial Lying-in Hospital, Vienna.

WHEN we consider that the funis is composed merely of two arteries, a vein, some areolar tissue, and a serous investing membrane, not one of which belongs to the stronger animal structures, such, for example, as tendons, and if we moreover reflect, that the vessels alluded to usually run a more or less tortuous course, in consequence of which the extension of the cord does not put all its component parts equally upon the stretch, we shall be led, even *a priori*, to expect, that the force required to rupture the funis must not necessarily be extremely great.

In order to demonstrate this, and to ascertain exactly the force required, I endeavoured to test experimentally the sustaining power of the funis. For this purpose I made use of umbilical cords, not selected, but taken from twenty healthy children, born (in the daytime) at successive births, and I made the trials, in the perfectly recent state, after the removal of the placenta. In order to perform the experiments, I brought one end of such a funis, having first enveloped it in a fold of linen in order to prevent its being cut by the string, in a curve, and tied it to a higher part of the same funis, similarly protected with linen, so as to form a loop. To this loop I then suspended, by means of a soft cotton lace of the thickness of a finger, one of the basons of a pair of scales, which I gradually loaded with pound weights. To let the load work I now seized the other free end of the funis, interposing a cloth so as to prevent its slipping, and raised the weight slowly from the ground. I generally began with a weight of four pounds, including the bason; if the funis did not give way with this, I placed the bason on the ground, added a pound, and repeated this manœuvre until the rent took place.

[The author gives, in a tabular form, the results of twenty experiments, stating the sex of the child, the appearance of the funis, its length, the weight required to rupture it, and the situation in which it gave way. The greatest length was twenty-three inches, the least ten and a half inches. In nine cases the rupture took place in the middle of the cord, in three at the upper extremity, in one close to the lower or foetal end, in four at three-quarters of an inch,



at one inch and a half, at two, and at three inches, respectively, from the lower end. In one case, in which the vessels were varicose, the cord gave way at the varix; in one which was very varicose, at the most varicose part; and in one in which the vessels were remarkably tortuous, at the point of greatest tortuosity.

As the result, it appears that, of twenty umbilical cords, two gave way with a load of five pounds' weight, three with one of six, one of seven, one of eight, four of eleven, three of twelve, two of thirteen, one of fifteen, two of sixteen, while one required a weight of twenty-three pounds to effect its rupture, the arithmetical mean, that is, the figure representing the weight under which the greatest number gave way, being eleven.

It is interesting to observe, that eleven is also nearly the real arithmetical mean, the result obtained by multiplying each weight by its corresponding number of cases, adding the sums, and dividing by twenty, being 10.95.]

If we now reflect that the ordinary weight of a newly born child amounts to from five to seven pounds, and compare this with the foregoing results, it will appear that, in six out of twenty cases, this weight was in itself sufficient to rupture the cord, while in but four was more than double the weight required to produce the same effect.

The greater or less facility of rupture, probably, to a certain extent depends upon the varying tenacity of the tissues of the cord, since funes, almost identical in appearance, gave way under very different weights; but it appears to be chiefly connected with the arrangement of the umbilical vessels. If these be varicose, or very tortuous, or if they form retrogressive loops, they cannot take their proportionate part in resisting any force to which the funis may be subjected. Thus, for example, the thin funis of a fœtus, at the fifth month, which contained no gelatinous matter, and in which the vessels ran a perfectly straight course, required a weight of eleven pounds for its rupture, while the navel strings of some healthy children, born at the full period, were torn by a weight of five or six pounds. The thickness of the cord is no criterion of its strength, as it depends principally on the amount of the Whartonian gelatine contained in the funis, which evidently can contribute nothing to its tenacity.

If we now apply what has been stated to cases of parturition, in which the full weight of the falling child can tell upon the navel string, as for example in births in the upright position, on the seats of privies, &c., we must take into calculation not only the weight of the child, but also the force with which it is expelled and especially, if the funis be long, the height from which it falls. Any one who has even but once witnessed a birth is aware how powerful the uterine contractions are; and the cases in which I saw the funis ruptured in deliveries of patients lying on the back or side, quoted in my former paper, published in the October and November Num-

bers of this Journal, prove that the contractions of the uterus are occasionally sufficient alone to rend the umbilical cord. If we then add together the three forces alluded to, the proposition will, I trust, not appear too strong,—*that in all cases of parturition, in which the full weight of the falling child can act upon the navel string, the rupture of the latter is, if not probable, at least possible.*

The best confirmation of this statement will, however, be found in the two following cases:—

CASE I.—Johanna S., pregnant for the second time, was seized, on the nights of 21st and 22nd January, 1851, in her dwelling, in the Landstrasse, with labour pains, and, after the latter had continued some time, rose from her bed. While she was doing so the child fell unexpectedly on the floor. An inexperienced woman wrapped it up and brought it, without tying the funis, and without loss of blood, safe with the mother to the Imperial Lying-in Hospital. The funis, which was of the ordinary thickness, was unevenly torn, about five inches from the navel. The child did not suffer the least bad consequence. I did not see the placenta.

CASE II.—Eva D., middle sized, primipara, felt the first pains about four o'clock on the evening of the 29th September, 1851, and about a quarter past nine the same evening walked by a footway of the glacis adjoining the imperial stabling (Stallungen), to the hospital. Suddenly, while the mother was walking erect, the child was expelled during a violent pain and fell on the gravelled walk, without the former perceiving any check upon the navel-string. Her companion took up the child as it was, without tying the funis, wrapped it in an apron, and accompanied the mother on her journey. They had only proceeded a few paces further when the placenta also was expelled, which she likewise took up and brought with her. On their arrival at the Imperial Lying-in Hospital the funis was found to be untied, the apron in which the child had been carried was but very slightly marked with blood, and the child itself appeared lively and vigorous. Its head was covered with gravel, but uninjured. The funis was thirteen inches long, smooth, contained but little gelatinous matter, was free from knots, and was torn off, as if it had been cut, close to its placental insertion, but before the distribution of the vessels. Its circumference, which was everywhere equal, measured thirteen lines, and its tenacity, tested twelve hours subsequently in the manner already described, was fifteen pounds. The naked child weighed five pounds, five and a half ounces. — *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien*, February, 1852, p. 116.

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*Mode of Termination of the Nerves in the Skin of the Fingers.* By  
RUDOLPH WAGNER.

AT a recent meeting of the Royal Society of Sciences of Göttingen, the celebrated physiologist, Wagner, stated that he had arrived at



the following novel results, on a careful examination of the nervous distribution in the skin of the extremities of the fingers. What have hitherto been called the papillæ of the sense of touch present two distinct formations; 1st, those which receive only vascular loops (vascular papillæ); and 2ndly, the nervous papillæ interposed among the former. The nervous papillæ have a conical form, and each incloses a minute body which is also conical. This corpuscle is placed in the papillæ like a kernel in its envelope, and in it the minute ramifications of the nervous filaments terminate. Each primitive nervous filament divides into a great number of small branches, to the end of which the corpuscles (*corpuscula tactus*) are attached. The type of the distribution of the nerves is in general the same as obtains in the muscular system. Each minute nervous filament governs, so to speak, a certain number of sentient papillæ, the aggregate of which correspond to a single point in the brain and spinal marrow; they produce only a simple impression of sensibility, whether they be touched singly or collectively. In fine, there exists a very curious numerical relation between the vascular and nervous papillæ of the different parts of the fingers and of the surface of the hand.—*Gazette Médicale de Paris*, 6th March, 1852, p. 152.

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*On Flexion of Limbs as a Means of arresting Arterial Hemorrhage.*  
By Dr. BOBILLIER, of Dunkirk.

IN the case of wounds of those arteries which are situated in the flexures of limbs, the hemorrhage may be suspended and even finally arrested by powerfully bending the injured limb. In a case in which the radial artery was wounded where it passes between the first two metacarpal bones in order to enter the palm of the hand and form the deep palmar arch, I succeeded in arresting the hemorrhage by flexing the thumb and keeping it fixed in the palm of the hand. In a second case, in which the radial artery was wounded above the wrist, exactly in the situation in which the pulse is generally felt, I found it sufficient to maintain permanent flexion of the hand upon the fore-arm. On another occasion a butcher had pierced the fold of his arm with the point of a knife; the brachial artery was wounded, and a frightful jet of blood issued from it; no thread was to be had in the place where the accident occurred, and I was without the instruments necessary to take up the artery, but by powerful and sustained flexion of the fore-arm on the arm, I succeeded in permanently arresting the hemorrhage. I believe that we may frequently avail ourselves of this simple method of arresting arterial hemorrhages, but I do not pretend to say that it will succeed in all cases, or that it affords the necessary degree of security. I am aware that it cannot be compared with the ligature, the latter alone possesses certainty. I merely state what I have done, and only propose the adoption of a flexed position of limbs on sudden emergencies, as in the country, or at night, when the appliances necessary for ligature are not at hand.

[In an editorial note to the foregoing paper, M. Malgaigne observes, that he himself was the first to point out, in 1834<sup>a</sup>, a certain means of arresting the hemorrhage in cases in which the brachial artery had been wounded in the operation of venesection, by strongly flexing the fore-arm. Subsequently, in 1838, he proposed in like manner to arrest the flow of blood from the popliteal artery by flexion of the knee; and he states that many surgeons have borne testimony to the simplicity and efficacy of this expedient<sup>b</sup>. M. Bo-billier, he adds, who appears not to have seen these precedents, cannot therefore claim priority in reference to the plan spoken of; but his observations tend to prove that the flexion of limbs may be applied to a much greater number of arteries; and in this point of view it has the merit both of great interest and of unquestionable novelty.]  
—*Revue Médico-Chirurgicale de Paris*, Jan. 1852, p. 56.

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*On the Use of Iodine Injections.* By Dr. SPENGLER, of Herborn.

AFTER iodine injections had been previously employed in various forms of dropsy, Dieulafoi, of Toulouse, conceived the bold idea of using them for the radical cure of ascites. The subject of the first experiment which he tried was a painter, aged 42, of cachectic habit of body, and extremely weakened by constant diarrhœa of two years' standing: ascites had suddenly set in after the suppression of the diarrhœa. The remedies employed both before and after paracentesis, which had been four times performed, were ineffectual. After the fifth operation, the patient being extremely depressed, a solution of rather more than an ounce of tincture of iodine and a drachm of hydriodate of potash in five ounces of water was injected, the mixture being, at the moment of injection, still further diluted with water. The fluid was diffused through the abdomen by means of the pressure of the hand, and its diffusion was accompanied by an agreeable feeling of warmth in the part. In a short time the patient was laid on his side, whereupon about half the fluid flowed out of the canula. In the evening febrile re-action and slight abdominal pain set in, but were soon relieved by mercurial frictions and poulticing. Ten days afterwards, the paracentesis and iodine injection were repeated; the abdominal enlargement was diminished about one-half, the obliterated portion being the lower region on the left side, consequently the quantity of the contained fluid which escaped through the puncture did not amount to more than half what it had been before the injection. In two months' interval the paracentesis and injection were again repeated; the enlargement had now become roundly circumscribed, and contained little more than five pints of fluid. The symptoms were the same after every repetition of the operation. Eight days after the last iodine injec-

<sup>a</sup> Manuel de Médecine Opératoire, First Edition, p. 78.

<sup>b</sup> See his Journal de Chirurgie, vol. iv. p. 120.



tion the abdominal cavity was apparently quite obliterated. General anasarca now came on, which was, however, removed by the exhibition of purgatives, and the patient recovered completely, the only inconvenience he experienced being a slight dragging sensation in the abdomen on raising himself from stooping to the erect position. Dieulafoi subsequently repeated the injection of iodine into the abdominal cavity in another patient without any bad consequence ; but of this case we have no accurate report<sup>a</sup>.

I am not aware whether the operation just described was tried in other cases and crowned with similar success, or whether unfavourable results have prevented further publication on the subject. And yet it is precisely from unsuccessful cases that we often learn more, than from those of the casuist who communicates only brilliant histories of almost miraculous cures. I have myself employed iodine injection into the peritoneal cavity in but a single case of ascites. The case was that of a girl, aged 21, whose illness commenced in the middle of June, 1850. On the 9th September, paracentesis of the abdomen was performed, but after about three quarts of fluid had been removed, the canula became obstructed, and all efforts to obtain a further flow were unsuccessful. [It was evidently ovarian dropsy.] The diminution of the abdominal tension, however, now permitted a more accurate examination of the state of the viscera, and from various circumstances which are detailed at length, the author diagnosed fatty infiltration of the liver and spleen as the cause of the ascites!

The operation of tapping was repeated on the 7th October, and sixteen or eighteen pints of fluid were drawn off, and after the latter ceased to flow through the canula, a mixture of one drachm of iodide of potassium, three grains of iodine, and three drachms of distilled water was injected into the cavity of the abdomen. This was followed by violent pain and faintness. During eighteen days every movement in the abdomen, which was hard and tense, was attended with considerable pain. At the end of that time the abdomen began again to swell, the feet became very much distended, and the organs of generation in particular were greatly œdematous. The patient was remarkably anemic ; her emaciation rapidly progressed ; she had a considerable degree of fever, but the appetite continued tolerably good. The skin was somewhat jaundiced. About the 20th of October, the œdema of the feet and genitals had become enormous, and the parietes of the abdomen appeared to be on the point of giving way. On the 23rd, tapping was had recourse to for the third time, and was followed by the injection of two and a half drachms of iodide of potassium and six grains of iodine dissolved in four ounces of water. On this occasion upwards of thirty pounds of fluid were drawn off. Violent pains and faintness followed the injection. The attacks of pain lasted much longer than they had

<sup>a</sup> Bulletin de l'Académie Royale de Médecine, Jan. 6, 13, 20, & 27, 1846.

done before, and a very high degree of fever was present. The urine passed three hours after the operation contained a large amount of iodine. On the second and third days iodine was still present in the urine; on the eighth, no trace of it could be detected. At the end of a fortnight the œdema of the legs and genitals had again attained its height, and the swelling of the abdomen was recommencing, when the integuments of the legs gave way, and so much fluid escaped that at the end of November the abdomen was quite collapsed, and the hepatic and splenic callosities were plainly discernible. The patient had for some time been taking the syrup of iodide of iron. The emaciation, however, still progressed, and a profuse serous diarrhœa hastened the fatal result, which took place on the 10th December. Autopsy was not permitted.

Even in the earlier ages of medicine it had been attempted to inject stimulating fluids, vapours or gases (according to Roosbroeck, nitrous oxide gas), after paracentesis, through the canula into the cavity of the abdomen, in order by these means to excite adhesive inflammation, and to destroy the secreting surfaces. Thus it is stated that in two cases cures were obtained by causing the vapour of spirit to flow in. On this subject Canstatt remarks: "Even if some few experiments can be quoted which may be considered to prove that the desired object can be attained, the facts bearing on the point are still so few and uncertain, the danger of peritonitis following such injections so great, that the proposal at the present day has more historic than practical value." But neither in Dieulafoi's case nor in that which I have just related, was the inflammation produced by the iodine injection so great as to give rise to danger. And if it be the dread of extensive and dangerous peritoneal inflammation which has hitherto withheld practitioners from such attempts, both cases go to prove that such a result is not very much to be dreaded. In one case certainly the iodine injections were inefficacious, the dropsy progressed, and ended fatally. But even although this case has afforded no favourable result, yet taken along with the preceding it proves that iodine injections may safely be thrown into the abdominal cavity; and since many cases of cure by exciting inflammation, or, more correctly, by destroying secreting surfaces, are on record, we should be justified in instituting further experiments.

Moreover, I find in the *Union Médicale* for 1850, Nos. 17-19, three cases communicated by Leriche, in which ascites was perfectly cured by means of iodine injections. His formula is one ounce of tincture of iodine, one drachm of iodide of potassium, and eight ounces of water. He recommends that as much as possible of the dropsical fluid shall be drawn off, and that very shortly after throwing in the injection, the greater portion of it be allowed to escape. No inconvenience was felt immediately after the operation; but on the second or third day violent abdominal pains set in, which in a short time again disappeared. The patients were completely



restored to health in about three weeks, and in no case was any relapse observed even at the end of two years.

2. *In Hydrocele.*—It would be unnecessary to relate a single case to prove or confirm the efficacy of iodine injections in hydrocele, for hundreds of cures by this method are on record. [The author, however, thinks it well to detail a case in which the iodine injection effected a perfect cure after other modes of treatment had been unsuccessfully tried. The case was that of a scrofulous boy, ten years old, in whom hydrocele of the left side had gradually formed. He was first placed under the care of a physician in Anspruch, and treated by frictions, with stimulating applications so severe as frequently to remove the skin and produce most violent pain. Deriving no benefit from this plan, a second practitioner was called in, who punctured the scrotum, drew off the fluid, and injected red wine. The swelling, however, returning in as great a degree as before, the operation was, after an interval of many months, repeated. This too proving unsuccessful, the author was consulted. He insisted on the so-called radical operation of removing the tunica vaginalis. In August, 1849, this operation was performed under chloroform. A large portion of the tunica vaginalis was removed from either side, and a serous cyst, of the size of a hazel nut, which was firmly attached to the testicle, was cut off with a pair of scissors. The wound healed in the ordinary mode by suppuration, in a fortnight. Nevertheless, in the course of the winter the swelling re-appeared, and although inunctions of iodide of mercury and of iodide of potassium were immediately employed and diligently persevered in for six weeks, the scrotum was in February fully as large as it had been before the operation. On the 11th April, 1850, the patient was placed under the influence of chloroform, the scrotum punctured with a fine trocar, and after the contents had been evacuated, as much as possible of the following solution was introduced and brought into contact with every part of the scrotum by agitation and kneading:—iodide, of potassium, two drachms, iodine, one drachm, distilled water, four drachms. After the lapse of about five minutes the solution was allowed to escape. Soon after, the boy awoke without having experienced the slightest pain. The further progress of the case was exactly as described by Pitha; very considerable inflammatory swelling lasting for five days. By confinement to bed, and the use of a suspensory bandage, with ordinary nourishing diet and beer, he was on the ninth day after operation so far recovered as to admit of his removal home, a distance of five or six miles. There the swelling gradually disappeared, his general health improved, and now, at the end of fifteen months, he is in tolerable health, and the hydrocele completely cured.]

This case is particularly interesting from the fact of the so called radical operation by excision having been employed and followed by a relapse which only yielded permanently to the iodine injection; the injections of red wine also proved totally inefficacious as did the external remedies which, although in different degrees, were twice

employed. Hence we can no longer with justice designate the operation of excising portions of the tunica vaginalis "the radical operation;" this title now belongs solely to the treatment with iodine injections. Formerly the tincture of iodine was, and is even still, employed as the fluid to be injected, but the solution of iodurated iodide of potassium is at all events much more to be depended on than the tincture, because the iodine of the latter is apt to become deposited on the canula. In what mode the injections act in these cases is not as yet ascertained. Whether they merely excite a violent inflammation terminating in adhesion and obliteration, or whether they not alone cause the death of the most superficial layer of membrane, as the application of iodine does of the cuticle, but also alter the morbid action, is still an open question. At all events it appears to me, that it is not merely by exciting adhesive inflammation that iodine acts so admirably; for adhesive inflammation is likewise produced by excision, the injection of caustics, such as solution of nitrate of silver, caustic potash, &c., and yet these means have afforded no permanent result. The morbid secreting action is the principal cause of the mischief, and it is the alterative action of the iodine which here particularly comes into account, the more deeply penetrating property, which is not, as with caustics, limited to the surface. When, for example, ever so much is removed by excision, a portion, even though it be very small, of the morbidly secreting tunica vaginalis, may be left behind, and continue its previous action; and by this means the collection of fluid will necessarily become as great as it was before. In my opinion adhesive inflammation is not indispensable to cure; it is mainly the alteration of the entire tunica vaginalis, produced by the deeply penetrating effect of the iodine, which, by arresting the morbid secretion, produces the cure. The observations of Chaumet, of Bourdeaux, support this view, for he states<sup>a</sup> that many hydroceles heal without obliteration of the tunica vaginalis, which is moreover the termination to be desired. This method, besides the greater certainty of success, possesses the important advantage of being unattended with dangerous consequences, such as, especially in excision, are ordinarily observed. The pain of the iodine injection may be prevented by the use of chloroform. Excision has been called the most rational mode of removing hydrocele, but besides the case just now detailed, I remember assisting a friend and colleague in an operation for double hydrocele, in which a relapse of both hydroceles took place within six months, although very large portions of the tunica vaginalis had been removed, and copious suppuration had been long kept up.

This case appears to me to afford an important exemplification of the efficacy of the various modes of treatment of hydrocele, and to give a key to the decision of the question of the comparative suita-

<sup>a</sup> *Compte rendu de la Clinique Chirurgicale de l'Hôpital Saint André à Bourdeaux, 1849.*



bility of each method. From it the iodine injection would appear to be greatly preferable to all other plans hitherto employed. It is evident that, in the case I have related, the spirit was not the active agent, as has been asserted of tincture of iodine, for I did not employ a spirituous preparation. But even should a healing property belong to spirit of wine employed as an injection in hydrocele, it is well known that in diseases of the testicle it is inefficacious, while iodine exerts the most useful influence on the diseased organ.

I have quite recently had another opportunity of employing iodine injections in a patient affected with hydrocele, and since this case also presents some peculiarities which tend to prove and confirm the efficacy of this remedy, I shall relate it.

[The case alluded to is one of a young lithographer who had from childhood a hydrocele of the left side, which came on without any assignable cause. It was tapped before the boy had attained the age of six years, but rapidly regained its former magnitude, and remained undiminished until after his marriage. In the course of last year it suddenly increased, attaining the size of the closed hand, and the author was applied to for advice. The situation of the testicle could not be ascertained. As the testicle usually occupies the postero-superior part of such a tumour, the author, in consultation with his colleague who assisted him in the operation, selected the middle of the inferior portion of the swelling. In making the puncture he experienced a tolerably firm resistance. The entire of the fluid, which was perfectly clear, was drawn off, and it then became evident that the trocar had perforated the testicle, and that the latter was impaled upon the canula, nevertheless, the above-mentioned solution of iodine was injected and allowed to remain in the sac for upwards of five minutes. The operation was performed under chloroform, and no pain was felt. After the iodine solution, which had been thrown in in quantity sufficient to restore the former bulk of the tumour, was allowed to escape, the scrotum was not more than its normal size. Next day, however, it was swollen and as large as it had been before the operation, the skin was red, the swelling very hard and painful. The patient experienced a painful dragging sensation along the spermatic cord and in the upper part of the left thigh. There was no trace of iodine in the urine. The swelling continued unaltered for three weeks, and was accompanied by violent fever, great thirst, loss of appetite, and constipation. Calomel was administered. In the course of the fourth week, as the tumour showed no tendency to abate, the scrotum was gently strapped, and iodine with iodide of potassium given internally. The swelling now rapidly diminished. At the end of a week the patient was able to leave his bed, and by wearing a suspensory bandage felt no uneasiness. After another week the tumour was only as large as a small hen's egg; instead of being strapped, the entire scrotum was now covered with a layer of collodion, under which plan the swelling became much smaller, so that the patient felt quite well and able to attend to his business, and it was evident that the slight enlarge-

ment which still remained would entirely disappear, and that therefore the operation had been, in the true sense of the word, a radical cure.]

The most important point in the foregoing operation was the unfortunate accident of the testicle having been transfixed by the trocar. A traumatic orchitis ensued; yet even on this the iodine injection had no injurious effect, but on the contrary the inflammation tolerably quickly terminated in resolution, although from the great tendency of traumatic orchitis to end in suppuration, the latter result might almost with certainty have been expected.

3. *In indolent (kalten) abscesses.*—The multiplicity of plans which have been proposed for the treatment of indolent abscesses affords a proof either that several different affections have been comprehended under the term, or that no mode of treatment has as yet been devised exactly suitable to the disease. More recently, indolent, or, as they are called, “cold” abscesses, have been distinguished from other abscesses, namely, the abscesses of congestion; and the Parisian surgeons in particular have carried on lengthened discussions on the subject of their treatment. Nevertheless, no distinct conclusion has as yet been arrived at. The following case has afforded me an opportunity of employing the various modes of treatment, and as in the cases comprised under the two preceding heads, the treatment by iodine injection would here also appear to be the most advisable.

[The author concludes his paper by relating the case, which is one of a poor widow, aged 60, in whom a large tumour had slowly formed in the right buttock. At the end of nearly two years it had attained the size of the closed hand, and had become quite soft. During the exertion of making her bed the tumour gave way and discharged about eight ounces of pus. The discharge became thinner, more sanious, and more copious, the edges of the opening became flaccid, and the abscess showed a complete want of vital or healthy action; the patient was extremely reduced by the profuse discharge, and suffered from loss of appetite, evening exacerbations of fever, and watery diarrhœa. Warm poultices were employed, with the internal exhibition of quina and opium. Notwithstanding this treatment, the discharge became more profuse, and the patient still weaker. The author now tried ergot of rye internally as recommended by Brown<sup>a</sup>, supposing that this remedy, which possesses the power of closing the mouths of the capillary vessels of the uterus and the secreting orifices of those of the vagina in leucorrhœa, might have the same effect on those of the sac of the abscess. It was given in powder combined with quina, but it proved useless. The septic condition became still more decided, the discharge more copious, and the patient's strength daily gave way. Local stimulants were next had recourse to. The solution recommended by Cappeletti, who prefers nitrate of silver to all other ordinary means<sup>b</sup>,

<sup>a</sup> Lancet, May, 1850.

<sup>b</sup> Il Filiatre Sebezio, May, 1842.



consisting of twenty grains of this salt in four ounces of water, with one drachm of tincture of opium, was injected, each injection occasioning violent pain. At the end of a week, during which time the proportion of the nitrate in the injection had been gradually increased, the discharge continued as ichorous as before, and was attended with the same disgusting odour, and the size of the abscess was undiminished. The patient was supported by quina, wine, and nourishing diet. At length, in the middle of August, 1850, two months after the bursting of the abscess, iodine was used, according to Lugol's formula: one scruple of iodine and two scruples of iodide of potassium being dissolved in four ounces of distilled water; and a portion of this solution was injected every day, causing the most violent pain. But the discharge soon improved in quality and diminished in quantity, the cavity of the abscess became smaller, and in the commencement of September had closed, its situation being only pointed out by a contracted, slightly oozing surface, of the size of a silver kreutzer. This was now dressed with zinc ointment, and rapidly healed. The patient's health was perfectly good, but it was thought advisable to continue a tonic plan of treatment for some time longer.]—*Vierteljahrschrift für die praktische Heilkunde, Prag.* 1852. *Band. Originalaufsätze*, p. 159.

[Ascites can very seldom be considered essentially as a disease in itself, being almost invariably a symptom, and generally of some organic affection of the liver or spleen, or of some other internal organ. Even suppose the treatment recommended so strongly by Dr. Spengler were well calculated to cure the ascites, it is to be recollected that the disease upon which the dropsy depends is still to be overcome. The effusion may be a symptom of chronic peritonitis, and in such a case it may be asked, should the treatment by injection be employed? The author does not speak of the distention of the abdomen by the fluid contained in a very large ovarian tumour,—although we are inclined to think that his case was one of this nature,—and the treatment of such a disease by the evacuation of the cyst by an operation and the injection of a stimulating fluid; and yet such appears to us to be the only case in which the most heroic practitioner in these countries would think fit to venture on the employment of the plan recommended. The acute ascites that comes on from the effects of cold, or after scarlatina, cannot be contemplated by any one as the subject of such experiments as those alluded to by the author, much less can any of these operations be thought prudent where the ascites is the result of cardiac disease. On the whole, therefore, we do not think that in any instance the treatment of ascites by injection can be prudently adopted, but we wished to make our readers acquainted with the author's views on the subject.

Dr. Spengler's observations upon hydrocele require but little comment; the treatment first proposed by Sir James Earle, of the injection of port wine and water, has amply succeeded in the hands of British surgeons in effecting the radical cure of hydrocele, and whe-

ther that by iodine injection, used extensively by Velpeau and others, be really preferable, still remains to be proved.

In the author's observations upon chronic abscesses, he seems as little precise as he has been in his remarks upon the treatment of ascites; he has not, as fully as he should have done, first laid down that there are two forms of chronic abscesses—one consisting of a complete isolated cyst, which has no connexion with any diseased bone, and which may be treated successfully either by free incision or by exciting inflammation of the interior of the cyst by the injection of tincture of iodine or any other irritating fluid; and this is the only form of chronic abscess in which he has exemplified the treatment he recommends, while of the other form of chronic abscess symptomatic of some diseased portion of bone, in general deeply situated, he has not given any example; for such a case as this, we presume, he recommends the treatment by injection, yet is it to be expected that any such plan will here prove successful? If, for example, a true psoas abscess be evacuated, and its cyst injected with a stimulating fluid, we cannot expect either to cure the psoas abscess or the caries of the vertebræ upon which it depends. The author, in so superficially dealing with such important diseases, and suggesting such bold innovations in their surgical treatment, does not seem to us to have sufficiently felt the responsibility that must attach to the publication of opinions from so high a medical authority.—ED.]

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*Special Pharmacopœia for Diseases of the Skin.* By ALPHÉE CAZENAVE, M. D., Physician to the Hôpital St. Louis, Paris.

(Continued from p. 256.)

**ANTIMONY.**—Sulphuret of antimony has been extensively employed in the form of powder, pills, and lozenges. It constitutes the basis of a great number of officinal preparations formerly highly esteemed, the majority of which are now, however, obsolete. It is given in doses to the extent of one or two drachms daily.

*Kunkel's Antimonial Lozenges.*—Sweet almonds, two drachms; sugar, thirteen drachms; cardamom seeds in powder, one drachm; powdered cinnamon, half-a-drachm; levigated sulphuret of antimony, one drachm; gum tragacanth, fifteen grains; mix and form lozenges, each weighing fifteen grains, and consequently containing about one grain and a half of the sulphuret. These lozenges have been used in chronic cutaneous affections. *Stibiated Pills.*—Crude antimony, extract of dulcamara, equal parts, beat into a mass, to be divided into pills, each containing one grain and a half, of which from five to ten may be given in diseases of the skin three times a day. *Bouchardat's Antimonial Pills.*—Levigated sulphuret of antimony, ten drachms; cinnamon powder, four scruples; conserve of roses, as much as may be sufficient; make into boluses of six grains each. From two to four may be taken daily in squamous diseases. *Jasser's Detergent Powder.*—Crude antimony, sublimed sulphur, puri-



fied nitre, orris root, of each five grains: to be reduced to an impalpable powder, and taken morning and evening in half-a-glass of eau sucrée. This powder is prescribed in impetiginous affections, and its use should be continued for a long time. Latterly, however, the golden or deuto-sulphuret of antimony has been more frequently used in the treatment of chronic affections of the skin; it is much employed in England and in Germany, and is one of the ingredients of Plummer's powder, a well-known and extensively prescribed preparation. *Plummer's Alterative Powder*.—Calomel and golden sulphuret of antimony, of each fifteen grains. The ingredients should not be mixed until the moment of administration. The dose is from three to six grains daily.

SILVER.—M. Serres, of Montpellier, proposed in 1838 the use of the salts of silver in syphilis, and at the same time published the favourable results of his experience. They have since been used, among others by M. Payan, who has confirmed the efficacy of this class of remedies, chiefly in those cases in which mercurial treatment is inadmissible, or in which it has failed. I have on a previous occasion stated<sup>a</sup>, that from a series of experiments very carefully conducted in conjunction with Bielt, we had drawn conclusions entirely at variance with the foregoing. We tried the oxide, chloride, cyanide, and phosphate of silver, beginning with the fifth of a grain, half-a-grain, and even upwards of a grain daily, and increasing the dose to an amount much greater than had before been tried. M. Ricord also has made experiments, the results of which have likewise been completely negative.

The preparations of silver are at present very little used internally, either in syphilis or in scrofulous diseases of the skin (lupus) for the treatment of which they have been proposed. The following is M. Payan's formula: chloride of silver, three-fourths of a grain; powdered orris root, one grain and a half; mix and divide into twelve equal portions. Frictions on the tongue with a portion continued for a quarter of an hour daily. In addition, a pill in the evening, containing the twelfth of a grain of oxide of silver. At the end of a few days M. Payan gives two pills instead of one. *Pills of Iodide of Silver*.—Iodide of silver, three grains; conserve of roses, as much as may be sufficient to form twenty pills, of which from one to five may be given as a dose in syphilitic affections and in lupus. Iodide of silver is not attended with the disadvantage of giving to the skin the leaden tint observed after the use of the nitrate (?) *Pills of Iodide of Silver*.—Nitrate of silver, fifteen grains; iodide of potassium, half-a-drachm; starch, forty-five grains, gum arabic, fifteen grains; water, as much as may be sufficient to form a mass, which is to be divided into 100 pills, to be rolled in silver leaf (Mialhe). The uses and dose of these are the same as of the preceding preparation.

But it is chiefly externally that the preparations of silver, and almost exclusively the nitrate, are resorted to in the treatment of syphilis and of diseases of the skin. The latter is the abortive remedy

<sup>a</sup> See Annales des Maladies de la Peau, tom. ii. pp. 29, 49.

proposed in variola, herpes, &c. It is the agent ordinarily employed in cauterization, to stimulate chronically ulcerated surfaces, to arrest the progress of a spreading erysipelas, &c., or to check a blennorrhagic or leucorrhœal discharge. It is well known that Alibert has frequently had recourse to it to allay pruritus, and in the treatment of a great number of cutaneous affections; a plan the inconveniences of which I have often pointed out<sup>a</sup>. *Solution of Nitrate of Silver*.—Nitrate of silver, four grains; distilled water, one ounce. To be applied with a feather to modify the discharging surfaces of a chronic eczema or impetigo.

*Pomade of Nitrate of Silver*.—Nitrate of silver, from fifteen grains to one drachm; lard, one ounce; mix;—to be applied as an ointment in erysipelas. *Pomade of iodide of silver*.—Iodide of silver, nine grains; lard, one ounce; mix;—in syphilitic and scrofulous enlargements. *Pomade of cyanide of silver*.—Cyanide of silver, nine grains; lard, one ounce; mix;—as a dressing in syphilitic ulcerations. The two latter pomades have been proposed to fulfil the indications for which iodide of potassium or mercurial preparations are had recourse to; but as it has by no means been proved that they possess analogous efficacy, they are generally little employed. *Injections of nitrate of silver*.—Nitrate of silver, three-fourths of a grain; distilled water, four ounces;—as an injection in blennorrhagia, the proportion of the nitrate being gradually increased. *Caustic injection* (Ricord).—Nitrate of silver, four scruples; distilled water, one ounce;—to be used cautiously as an abortive injection. *Cosmetics of nitrate of silver*.—Nitrate of silver, lastly, constitutes the basis of the majority of the preparations, and of the more or less celebrated dyes, which have been extolled for their efficacy in changing the colour of hair to black. For this purpose it is employed in washes, as a paste, in the liquid form, &c. All of them, which are not always without some inconvenience, are most frequently difficult of application and uncertain in their effects. The following are three of the most simple selected from a vast number. Nitrate of silver, one drachm; distilled water, one ounce; raw sugar, sufficient to colour the solution; it is to be applied by means of a fine comb dipped in the solution, care being taken to avoid touching the skin. Nitrate of silver, cream of tartar, of each, two drachms; weak liquor of ammonia, half-an-ounce; lard, half-an-ounce, mix. This pomade is to be applied to the hair by means of a comb or of a brush. Nitrate of silver, proto-nitrate of mercury, of each, half-an-ounce; distilled water, four ounces,—dissolve, filter, and wash the filter with distilled water, sufficient to increase the solution to five and a half ounces. A clear paste is to be made by mixing this solution with a sufficient quantity of starch. The hair is to be smeared with it at night, and covered with oiled silk; the next morning the paste is to be washed off, and any greasy substance applied in its stead.—*Annales des Maladies de la Peau et de la Syphilis*, tom. iv., 1852.

<sup>a</sup> Ib. omt. i. p. 353.



# INDEX

## TO THE THIRTEENTH VOLUME.

---

### A.

Abscess, lumbar, 476.  
 Abscess, psoas, 472.  
 Abscesses in brain, Dr. Gordon's case, D. P. S., 212.  
 Academy, Royal, of Sciences Vienna, Transactions, *Rev.*, 433.  
 Acid, acetic, in skin diseases, 252.  
 Acid, chromic, as an escharotic, Dr. Fromer on, 250.  
 —, nitric, use of, in skin diseases, M. Cazenave on, 250.  
 —, —, lotion of, 250.  
 —, tannic, tannin, M. Cazenave on use of, in skin diseases, 253.  
 —, uric, crystals of, Dr. Lyons on a large and highly-coloured variety of, 123.  
 Acids, M. Cazenave on the treatment of skin diseases, 252.  
 Aconite, use of, in skin diseases, 253.  
 Alum, use of, in skin diseases, 254.  
 Ammonia, use of, in the treatment of skin diseases, 254.  
 —, —, lotion of, 255.  
 —, —, Mixture de Perilhe, 254.  
 —, —, Pomade de Gondret, 255.  
 —, —, syrup of carbonate of, 255.  
 Ammoniacum, use of, in skin diseases, 255.  
 Amputation, Dr. King's case of, with traumatic phlebitis, 221.  
 Anatomy, microscopic, Dr. Gerlach's, *Rev.*, 432.  
 —, —, Professor Kölliker's, *Rev.*, 432.  
 —, —, pathological, of bronchitis, Dr. Gairdner's, *Rev.*, 154.

Anatomy, physiological, Dr. Carpenter's manual of, and of physiology, *Rev.* 152.  
 —, —, surgical and descriptive, of arteries, Dr. Corbett's, *Rev.*, 194.  
 —, —, —, Mr. Macclise's, *Rev.*, 193.  
 Aneurism of aorta, Dr. Cheevers on the management of, and of diseases of the heart, *Rev.*, 170.  
 —, —, aorta, Mr. O'Ferrall's case, D. P. S., 198.  
 —, —, arteria innominata, Dr. Holland on the history and differential diagnosis of, from aneurisms of the arch of the aorta, 68, 268.  
 —, —, thoracic aorta, Dr. Mayne's case, D. P. S., 211.  
 —, —, —, Dr. M'Dowell's case, D. P. S., 206.  
 Ankle-joint, fractures in the vicinity of, Mr. Butcher on, 96.  
 —, —, and tarsus, disease of, Mr. Hamilton's case, D. P. S., 200.  
 Anthrakokali (carburet of potassium), use of, in skin diseases, Cazenave on, 255.  
 Antimony, use of, in diseases of skin, Cazenave on, 256.  
 —, —, Kunkel's antimonial lozenges, 502.  
 Aorta, aneurism of, Dr. Cheevers on the management of, *Rev.*, 170.  
 —, —, Mr. O'Ferrall's case, D. P. S., 198.  
 —, —, —, Dr. Holland on the differential diagnosis of, from aneurisms of arteria innominata, 68, 268.

Aorta, thoracic aneurism of, Dr. M'Dowell's case, D. P. S., 206.

—————, Dr.

Mayne's case, D. P. S., 211.

Apoplexy, pulmonary, Dr. Gordon's case, D. P. S., 461.

Apparatus, new, for fractures of femur, by Dr. Bevan, 1-11.

Arteria innominata, aneurisms of, Dr. Holland on the history and differential diagnosis of, 68, 268.

Arteries, surgical and descriptive anatomy of, Dr. Corbett on, *Rev.*, 194.

Artery, pulmonary, diseased conditions of, Dr. Cheevers on, *Rev.*, 170.

—————, right, obstruction of, with cirrhosis of right lung, Dr. M'Dowell's case, D. P. S., 462.

Atropia, use of, in hydrophobia, Dr. Fran. Richiedi on, 245.

————— and sulphate of veratria, on some effects of, by Dr. Giacinto Namias, 249.

## B.

Banks, Dr., on ischuria renalis, D. P. S., 197.

————— case of tetanus cured by chloroform, 225.

Baudon on use of chloroform in tetanus, cited by Dr. Banks, 228.

Bellingham, views on aneurismal sounds, considered by Dr. Leared, 361.

Bevan, Dr., on the treatment of fractures of the femur, and a new fracture apparatus, 1-11.

Black, Dr., case of encysted tumour of left labium externum, 486.

Bladder, calculus of, Mr. O'Ferrall's case, D. P. S., 205.

————— and prostate gland, Mr. Coulson on the diseases of, *Rev.*, 388.

Blennorrhagia, not the result of syphilis, M. Ricord's opinions, *Rev.*, 129.

Bobilier, Dr., on flexion of limbs as a means of arresting arterial hemorrhage, 493.

Bock, Dr. Carl, on juridical sections of the human body, *Rev.*, 451.

Brain, abscesses in, Dr. Gordon's case, D. P. S., 212.

———— ramollissement of, Mr. Haire's case, 488.

———— softening of, Dr. Rowland on, *Rev.*, 178.

Bronchi, obstruction of, Dr. Gairdner on, *Rev.*, 154.

Bronchitis, patholôgical anatomy of, Dr. Gairdner on, *Rev.*, 154.

Brown, Mr. S., on the structure and functions of the human eye, *Rev.*, 196.

———— cases from practice, with observations, 214; cleft palate, operation of staphyloraphy, 215.

———— case of strangulated femoral hernia, 218.

———— Mr. J. B., on rupture of the perineum, *Rev.*, 428.

Buboes, M. Ricord's observations on, 407.

Burns, Mr., case of aneurism of arteria innominata, 85.

Butcher, Mr. R. G. H., on the treatment of fractures in the vicinity of the ankle-joint; with observations on the practice of tenotomy, as facilitating reduction of the broken bones, 96; part second, 329.

## C.

Calculi, Mr. Coulson's observations on, *Rev.*, 397.

———— urinary, from a female, 477.

Calculus in bladder, Mr. O'Ferrall's case, D. P. S., 205.

Campbell, Dr., case of aneurism of arteria innominata, 75.

Cancer, M. Lebert on, *Rev.*, 433.

Canstatt's Jahresbericht, *Rev.*, 432.

Catalogue, descriptive and illustrative, of histological series of the museum of College of Surgeons of England, *Rev.*, 432.

Carburet of potassium (anthrakali), use of, in diseases of skin, Cazenave on, 255.

Carpenter, Dr. Wm., principles of physiology, general and comparative, *Rev.*, 152.

————, a manual of physiology, including physiological anatomy, *Rev.*, 152.



Cazenave, Dr. A., special pharmacopœia for diseases of the skin, 252, 502.

Cerebellum, encephaloid tumour of, Dr. M'Dowell, D. P. S., 199.

Chancre alone gives rise to chancre, M. Ricord's opinions, *Rev.*, 134; progress and development of chancre, 141.

Charriere, modification of uterine pessary by, *Rev.*, 384.

Cheevers, Dr., on the management of diseases of the heart and of aortic aneurism, *Rev.*, 170.

———, collection of facts illustrative of diseased conditions of the pulmonary artery, *Rev.*, 170.

Chloroform, Dr. Banks' case of tetanus cured by, 225.

Circulation, acoustic phenomena of, Dr. Leared on, 338.

Cirrhosis of liver, Dr. Gordon's case, D. P. S., 461.

——— right lung, Dr. M'Dowell's case, 462.

Clavicles, partial displacement of sternal end of each, Dr. Stokes' case, D. P. S., 459.

Collapse, pulmonary, as the result of bronchial obstruction, Dr. Gairdner on, *Rev.*, 154.

Colles, Mr. William, on traumatic spasms, 33.

Corbett, Dr., surgical anatomy of the arteries, *Rev.*, 194.

Coulson, Mr., on diseases of the bladder and prostate gland, *Rev.*, 388.

Coxæ, morbus, Mr. Hamilton's case, D. P. S., 464.

Cystitis, chronic, Mr. O'Ferrall's case, D. P. S., 205.

Cysts, purulent of heart, Dr. Mayne's case, D. P. S., 460.

#### D.

Death, its medical aspects, Mr. Harrison on, *Rev.*, 177.

Deficiency, congenital, of septum cordis as a cause of cardiac murmur, Mr. T. H. Ledwich on, 41.

Diagnosis, differential, of aneurisms of arteria innominata, Dr. Holland on, 68.

Dictionary, Dr. Thomson's, of domestic medicine, *Rev.*, 450.

Diseases of infancy and childhood, Dr. West on, *Rev.*, 458.

Dislocation of tibia and fibula backwards at ankle, Prof. Smith's case, D. P. S., 465.

Dunglison, Dr., lexicon, *Rev.*, 402.

#### E.

Emphysema, mechanism of, Laennec's theory considered, Williams' and Gairdner's views, *Rev.*, 159.

Encephaloid tumour of cerebellum, Dr. M'Dowell on, D. P. S., 199.

Endocarditis, recent rheumatic, Dr. M'Dowell's case, D. P. S., 203.

Epilepsy, as result of syphilitic affections of the bones of the cranium, 55.

Erysipelas, idiopathic gangrenous, of scrotum, Drs. Fleming and Wilmot on, 371.

Escharotic, chromic acid as an, Dr. Fromer on, 250.

Excision, infra-maxillary of tongue, Dr. Guiseppe Giammatei on, 246.

Extension and counter-extension, best modes of effecting in fractures of thigh, Dr. Bevan's apparatus, 1-6.

Eye, Mr. S. Brown on the structure and functions of, *Rev.*, 196.

#### F.

Favrot, M., on retroversion of the uterus, *Rev.*, 282.

Feltz's Ptisan, 256.

Femur, fractures of, Dr. Bevan on, 1-11.

Fibula and tibia, fracture of, Prof. Smith's case, D. P. S., 202; displacement of end of tibia backwards at ankle, Prof. Smith's case, D. P. S., 465.

Fitzpatrick, Dr., case of scarlatina, with remarkable recovery, 233.

Fleming, Dr., and Dr. Wilmot, surgical observations by, 363; palliative treatment of hydrocele, casualties and contingencies attendant on, 364, &c.

Foramen ovale, patency of, with systolic murmur, Drs. Lees' and Ledwich's case, 41.

Fractures of femur, Dr. Bevan on, description of a new fracture apparatus, 1-11.

Fracture in the vicinity of the ankle-joint, Mr. Butcher on, 96; Mr. C. De Morgan's observations on tenotomy, 112; further observations, 329; on the removal of spicula of bone in, 335.

———— of tibia and fibula, Prof. Smith's case, D. P. S., 202.

Fromer, Dr., on chromic acid as an escharotic, 250.

Funis, rupture of, and its relation to legal medicine, Dr. Spaeth on, 490.

### G.

Gairdner, Dr., on the pathological anatomy of bronchitis, and the diseases of the lung connected with bronchial obstruction, *Rev.*, 154.

Gangrene after traumatic phlebitis, Dr. King's case, 221.

Genest, M., case of aneurism of arteria innominata, cited by Dr. Holland, 88.

Gerlach, Dr. J., Hand-book of histology, by, *Rev.*, 432.

Giammattei, Dr., on infra-maxillary excision of the tongue, 246.

Gland, prostate, and bladder, Mr. Coulson on diseases of the, *Rev.*, 388.

Gluge, M., investigation of the "tissu cellulaire artificiel" of Melsens, 240.

———— Pathological histology, by, *Rev.*, 433.

Gordon, Dr., case of abscesses in brain, D. P. S., 212.

———— case of cirrhosis of liver, and pulmonary apoplexy, D. P. S., 461.

### H.

Hematocoele of tunica vaginalis, Drs. Fleming and Wilmot on, 363.

Hemorrhage, arrest of, by flexion of limbs, 493.

Haire, Mr., case of ramollissement of brain, 488.

Hamilton, Mr., case of disease of ankle and tarsus, D. P. S., 200.

————, observations on the symptoms resulting from an undescended testicle requiring removal, 257.

Hamilton, Mr., case of displacement of head of femur from morbus coxæ, D. P. S., 464.

Hand-book of general and special histology, Dr. Gerlach's, *Rev.*, 432.

Harrison, Mr. Bower, on the medical aspects of death, and of the human mind, *Rev.*, 177.

————, case of monstrosity, 229.

Harrison, Mr. John, on the pathology and treatment of stricture of the urethra, *Rev.*, 448.

Heart, congenital deficiency of septal walls of, as a cause of cardiac murmur, Mr. J. H. Ledwich on, 41.

————, Dr. Leared on a new element in the causation of the first sound of, 238.

———— Dr. Norman Cheevers on the management of diseases of, and of aortic aneurism, *Rev.*, 170.

————, purulent cysts of, Dr. Mayne's case, D. P. S., 460.

Hernia, femoral, strangulated, Mr. Browne's case of, operation and recovery, 218.

———— of lung, Dr. Lake's case of, 231.

Histogenesis, observations on normal, 237.

Histology, Gerlach's hand-book of, *Rev.*, 432.

————, Kölliker's, *Rev.*, 432.

————, pathological, Dr. Gluge's, *Rev.*, 433.

Holland, Dr. T. S., on aneurisms of the arteria innominata, their history and differential diagnosis from aneurisms of the arch of the aorta, 68.

Houghton, Dr., on galvanism in obstetric practice, 11, 33.

Homœopathy, Dr. C. H. F. Routh on the fallacies of, *Rev.*, 429.

Hydrocele, Drs. Fleming and Wilmot on tapping for, 363.

————, Dr. Spengler on injections of iodine in, 497.

Hydrophobia, Dr. Fran. Richiardi on the use of atropia in, 245.

### I.

Injections of iodine, Dr. Spengler on, 494.



Infancy and childhood, diseases of, Dr. West on, *Rev.*, 458.

Inflammation, acute, of the tunica vaginalis testis, 373, 374.

———— of pancreas, Dr. F. Lussanna on 244.

———— diffuse, of scrotum, Drs. Fleming and Wilmot on, 368, 372.

Iodine, injections of, Dr. Spengler on, 494.

Ischuria renalis, Dr. Banks' case of, D. P. S., 197.

## J.

Journal of rational medicine, Henle and Pfeuffer's, *Rev.*, 432.

## K.

Kidney, disease of, Mr. O'Ferrall's case, D. P. S., 205.

King, Dr. C. C., cases of traumatic phlebitis, with gangrene, 221.

Kölliker, Professor, microscopic anatomy or histology of man, *Rev.*, 432.

## L.

Labium, Dr. Black's case of tumour removed from, 486.

Lake, Dr., case of hernia of lung, 231.

Lalor, Dr., account of an epidemic of pericarditis which appeared in Kilkenny, 114.

Latour, M. Amédée, M. Ricord's letters on syphilis to, *Rev.*, 129.

Leared, Dr., on the mechanism of the acoustic phenomena of the circulation of the blood, with an exposition of a new element in the causation of the first sound of the heart, 338; classification of circulating sounds, 346; views of Bellingham and Lyons on aneurismal sounds, 359.

Lebert, M. H., on cancerous diseases and the affections confounded with cancer, *Rev.*, 433.

Ledwich, Mr. T. H., on congenital deficiency of the septal walls of

the heart, as a cause of cardiac murmur, 41.

Lees, Dr., case of congenital deficiency of septal walls (see Mr. Ledwich on), 41.

Letters on syphilis, M. Ricord's, *Rev.*, 129, 403.

L'Estrange, Mr., improvements by, in lithotritic instruments, *Rev.*, 400.

Lexicon, medical, Dr. Dunglison's, *Rev.*, 402.

Limbs, flexion of, as a means of arresting arterial hemorrhage, 493.

Lime, oxalate of, in urine, Mr. Coulson on, *Rev.*, 391.

Lithotrixy, Mr. Coulson's observations on, *Rev.*, 400.

Liver, cirrhosis of, Dr. Gordon's case, D. P. S., 461; case of, with psoas abscess, 472.

Lotion, nitric acid, in skin diseases, Cazenave on, 253.

Lung, collapse of, as the result of bronchial obstruction, Dr. Gairdner on, *Rev.*, 154.

——, hernia of, Dr. Lake's case, 231; cirrhosis of right, Dr. M'Dowell's case, D. P. S., 462.

Lussanna, Dr. Franc, on the differential diagnosis of inflammation of the pancreas, 244.

Luxations, congenital, of radius, Professor R. W. Smith on, D. P. S., 208.

Lyons, Dr., on a variety of uric acid crystals, 123; remarkable size and shapes of, 125; colour of various yellowish, brown, and red tints, nature of colouring matter, 127; opinions of Burton and Schmidt, 128; observations on the mechanism of aneurismal sounds considered by Dr. Leared, 359; report on the "tissu cellulaire artificiel" of Melsens, 237; effects of physical agents on the coagulation of organized fluids, 239; investigations of M. Gluge, 241.

## M.

Maclise, Mr. T., surgical anatomy by, *Rev.*, 193.

Malcolm, Dr., Report of the Pathological Museum of Belfast, 472.

- Mayne, Dr., case of adhesive phlebitis, D. P. S., 201; case of aneurism of thoracic aorta, D. P. S., 211; purulent cysts of heart, D. P. S., 460.
- M'Dowell, Dr., encephaloid tumour of cerebellum, D. P. S., 199; rheumatic endocarditis, D. P. S., 203; aneurism of thoracic aorta, D. P. S., 206.
- Melsen's "tissu cellulaire artificiel," Dr. Lyons' report on, 237.
- Meningitis, syphilitic, notes on cases of, by Dr. T. Read, 53.
- Monstrosity, case of, Mr. J. B. Harrison on, 229.
- Moore, Dr. Charles F., on the diseases observed on board the Peninsular and Oriental Steamers, 299; observations on sea-sickness, 307.
- Murmur, cardiac, from congenital deficiency of septum cordis, Mr. T. H. Ledwich on, 41.
- Museum, Belfast Pathological, Dr. Malcolm's report on, 472.

## N.

- Namias, Dr. Giacinto, on some effects of atropia and sulphate of veratria, 249.
- Neck, enormous fibro-cystic tumour of, 478.
- Nerves, termination of, in skin of fingers, Wagner on, 492.
- Nitric acid, lotion in skin diseases, Cazenave on, 253.
- Nutrition, anormal, in articular cartilages, Dr. Redfern on, *Rev.*, 433.

## O.

- O'Ferrall, Mr., case of aneurism of aorta, D. P. S., 198.
- Obstetric practice, use of galvanism in, Dr. Houghton on, 11.
- Ovarian tumour, rupture of, followed by peritonitis, Dr. Tuffnell's case, 480.
- Oxalate of lime in urine, Mr. Coulson's observations on, *Rev.*, 388.

## P.

- Palate, cleft, Mr. Browne's case, 214.

- Pancreas, Dr. Franc Lussanna on the differential diagnosis of inflammation of, 244.
- Patency of foramen ovale, with systolic murmur, Drs. Lees and Ledwich's case, 41.
- Pathological Society of Dublin, proceedings of, 197, 459.
- Pericarditis, Dr. Lalor's account of an epidemic of, 114.
- Perineum, Mr. J. B. Brown on the treatment of rupture of the, *Rev.*, 428.
- Peritonitis, Dr. Tuffnell's case of after rupture of ovarian tumour, 410.
- Pessary, uterine, M. Valleix on, M. Favrot on, Dr. Simpson's, Charrière's, *Rev.*, 383.
- Pharmacopœia, special, of Cazenave, for diseases of the skin, 252, 502.
- Phlebitis, adhesive, Dr. Mayne's case D. P. S., 201.
- traumatic, Dr. King's case, followed by gangrene, 221.
- Physiology, principles of, by Dr. Carpenter, *Rev.*, 152.
- manual of, including physiological anatomy, by Dr. Carpenter, *Rev.*, 152.
- Pneumonia, lobular, views of Dr. Gairdner, Barthez, and Rilliet, *Rev.*, 156.
- Pollini's ptisan, 256.
- Proceedings of Dublin Pathological Society, 197, 459.
- Prostate gland and bladder, Mr. Coulson on the diseases of the, *Rev.*, 388.
- Puche, M., observations on syphilis, *Rev.*, 409.
- Purpura, case of, 474.
- Pylorus, scirrhus of, 472.

## Q.

- Quekett, Mr., Descriptive and Illustrated Catalogue of the Histological Series of the Museum of the Royal College of Surgeons of England, *Rev.*, 432.

## R.

- Radford, Dr., views on the use of galvanism in obstetric practice, 12.



- Radius, congenital luxations of, Prof. Smith on, D. P. S., 208.
- Ramollissement of brain, Mr. Haire's case, 488.
- Dr. Rowland on, *Rev.* 178.
- Ray, Mr., case of aneurism of arteria innominata, cited by Dr. Holland, 71.
- Read, Dr. T., notes on cases of syphilitic meningitis, by, 53.
- Redfern, Dr., on anormal nutrition in articular cartilages, *Rev.*, 433.
- Redresseur uterin, M. Valleix on the, *Rev.*, 382.
- Retroversion of uterus, M. Favrot on the treatment of, *Rev.*, 382.
- Reports of Proceedings of Dublin Pathological Society, 197.
- Report, Canstatt's annual, on the contributions to medical science, *Rev.*, 432.
- Dr. Lyons', on the "tissu cellulaire artificiel" of Melsens, 237.
- Dr. Malcolm's, of Pathological Museum of Belfast, 472.
- Richeidei, Dr. Fran., on the use of atropia in hydrophobia, 245.
- Ricord, M., letters of, to M. Amédée Latour on syphilis, *Rev.*, 129, 403.
- Rilliet and Barthez, MM., on lobular pneumonia, cited by Dr. Gairdner, *Rev.*, 156.
- Routh, Dr. C. H. F., on the fallacies of homœopathy, *Rev.*, 429.
- Rowland, Dr., on the nature and treatment of softening of the brain, *Rev.*, 178.
- Rupture of funis, and its relation to legal medicine, Dr. Spaeth on, 490.
- of, as a cause of cardiac murmur, Mr. T. H. Ledwich on, 41.
- Silver, M. Serres on the use of salts of, M. Cazenave on, 503; iodide of silver, use of, 504; pomade of nitrate, 504.
- Simpson, Dr., on galvanism in obstetric practice, opinions cited, 11.
- Skin, Cazenave's pharmacopœia for diseases of, 252.
- Smith, Professor R. W., case of fracture of tibia and fibula, D. P. S., 202; cases of congenital luxation of radius, D. P. S., 208; case of dislocation of tibia and fibula backwards at ankle, D. P. S., 465.
- Society, Pathological, of Dublin, proceedings of, 197.
- Softening of the brain, Dr. Rowland on, *Rev.*, 178.
- Sound of heart, Dr. Leared on a new element in the first, 338.
- Spaeth, Dr., on rupture of funis in relation to legal medicine, 490.
- Spasms, traumatic, Mr. W. Colles on, 33.
- Spengler, Dr., on injections of iodine, 494.
- Staphyloraphy, Mr. Browne on, 215.
- Starch, use of in skin diseases, 253.
- Stokes, Dr., case of partial displacement of sternal end of both clavicles, D. P. S., 459.
- Stricture of urethra, Mr. J. Harrison on the pathology and treatment of, *Rev.*, 448.
- Syphilis, meningitis resulting from.
- Dr. Read's notes on cases of, 53,
- , M. Ricord's letters on, *Rev.*, 129.
- hereditary, Dr. Whitehead on, *Rev.* 162.

## S.

- Scarlatina, Dr. Fitzpatrick's case of remarkable recovery from, 233.
- Scirrhus pylori, case of, 472.
- Scrotum, diffuse inflammation of, Drs. Fleming and Wilmot on, 368.
- Sea sickness, Dr. Moore's observations on, 307.
- Sections, juridical, of human body, Dr. Bock on, *Rev.*, 451.
- Septum cordis, congenital deficiency

## T.

- Tannin, use of in skin diseases, 253.
- Tapping in hydrocele, Drs. Fleming and Wilmot on, 363.
- Tarsus, disease of, and of ankle, Mr. Hamilton's case, D. P. S., 200.
- Tenotomy, employment of, for the purpose of facilitating reduction

- of broken bones, Mr. Butcher on, 96.
- Testicle, Mr. Hamilton's observations on the symptoms of an undescended, which required removal, 257.
- Tetanus, Dr. Banks' case of, cured by chloroform, 225; failure of belladonna and opium, subsequent cure by chloroform, M. Baudon's case, 228.
- Mr. W. Colles on, contrasted with traumatic spasms, 39.
- Thomson, Dr., dictionary of domestic medicine and surgery, *Rev.*, 450.
- Tibia and fibula, fracture of, Prof. Smith's case, D. P. S., 202.
- Tissu artificiel cellulaire, of M. Melsens, Dr. Lyons on, 237.
- Tongue, infra-maxillary excision of, by Dr. Giammattei, 246.
- Transactions of the Academy of Sciences of Vienna, *Rev.*, 433.
- Tubercles in brain, 479.
- Tufnell, Dr., case of peritonitis after rupture of ovarian tumour, 480.
- Tumour, ovarian rupture of, followed by peritonitis, Dr. Tufnell's case, 480.
- enormous fibro-cystic of neck, 478,
- removed from labium externum, Dr. Black's case, 486.
- Tunica vaginalis, hæmatocele of, 363; acute inflammation of, 373.
- U.
- Urea in the ventricles of the brain, Dr. Banks' case, D. P. S., 197.
- Urethra, on the pathology and treatment of stricture of the, by Mr. John Harrison, *Rev.*, 448.
- Uric acid, Dr. Lyons on a variety of the crystals of, 123.
- Uterus, treatment of its displacements, M. Valleix on, *Rev.*, 382.
- retroversions of, M. Favrot on the treatment of, *Rev.*, 382.
- V.
- Valleix, M., on the redresseur uterin, or intra-uterin pessary, *Rev.*, 382.
- Veratria and atropia, on some effects of, by Dr. Namias, 249.
- W.
- Wagner, Rudolph, on termination of nerves of skin in fingers, 492.
- West, Dr., on diseases of infancy and childhood, *Rev.*, 458.
- Whitehead, Dr., on the transmission from parent to offspring of some forms of disease, and of morbid taints and tendencies, *Rev.*, 162.
- Wilmot, Dr., and Dr. Fleming, surgical observations by, 363.
- Z.
- Zeitschrift für rationelle medicin, edited by Drs. Henle and Pfeuffer, *Rev.*, 432.

The letters D. P. S. refer to the Reports of the Dublin Pathological Society.

END OF VOL. XIII.

